BULLETIN

MADRAS DEVELOPMENT SEMINAR SERIES

Vol. XX No. 11 November 1990

Sustainable Agriculture Development Through Watershed Management in dry Areas of Tamil Nadu

Do We Need an IMF-EFF Loan ?

CONTENTS

Editorial—Some Highlights

General Economic Scene 487

Agricultural Development in Tamil Nadu 502

Industrial Development in Tamil Nadu 506

Education, Science and Health 508

Employment and Labour Relations 510

Other Items 512

MIDS News 514

October Development Seminar

Sustainable Agriculture Development Through Watershed Management in dry Areas of Tamil Nadu
— **S. Sivarajasingham** 515

Summary of Discussion 526

Do We Need an IMF-EFF Loan ? 528

Book Review 530

EDITORIAL - SOME HIGHLIGHTS

I. General Economic Scene

State

General

The climate in September has been warm with bouts of sharp showers and heavy rains towards the end of the month in the southern part of the state (transforming the state from the deficient to normal category, with 238 mm from June 1. If to this is added a good North East monsoon, the economy of the state should look up for the year. The question now before the government and planners is whether the tail of the south west monsoon experienced in September will make up atleast to some extent for the late opening of Mettur and the sparse flows in the cauvery. Another equally important issue is whether the rains have helped the inflow into the hydel reservoirs which have not had a good level for this year.

Power

Power situation in the state in September was normal for the first half of the month but has run into a position of serious shortage in the last week, when the non delivery of coal to the thermal stations — Tuticorin and Mettur had only 3 days stock and so have closed down their sets at the end of September, which meant that 630 MW capacity was idle. The plant at Ennore is also working at less than half capacity for want of coal. To this should be added the sharp decrease in the Ramagundam Super thermal's supply as it is producing only 250 MW against its installed capacity of 2100 MW and supplying TNEB 45 million units instead of 60 million units, and Kalpakkam has closed its two units due to tripping. All this has involved a 25 per cent shortfall in power generation in the state — 2200 MW availability against the required 2900 MW. This

is being met immediately by load shedding but the eighth plan solution should be to expand the installed capacity which means higher investment in power which the Planning Commission and state government are providing. Unfortunately it looks as if there has to be greater reliance on thermal stations this year, because as hinted at earlier, all the 10 hydel reservoirs of the state — Bhavanisagar, Amaravathi, Periyar, Vaigai, Papanasam, Manimuthar, Pechiparai, Perunchani, Krishnagiri and Sathanur as at mid September record an average of 25 per cent level. Another area which needs to be further explored and developed is gas on which the union energy ministry has alloted 2 million cubic metres to the state, which can generate 600 MW. The state should help in reducing the gestation period on gas induced power plants and TNEB should develop small plants as the gas is available in several places in the cauvery basin. This has been done for the Vengidangal project which will have 2 sets of 5MW each. Another source which is being explored is the private sector, which has been invited to invest in power as set forth in Vol.XX pp352-532. Here the state government has invited NRIs to concentrate their investment on the 1000 million tonnes of lignite in the Jayamkondan belt, the investment covering both mining and generation. But there are also limits to the private sector action in this area and so the government with the help of the State Planning Commission should limit in the VIII Plan the use of power by industry which is its major user. The fast clearance proposed by the government for non power intensive units is a move in the right direction.

At the national level, the power position in the country in September presents the same mixed picture. Power surplus states like Kerala are facing peak load problems due to a short fall of 150 MW in the evenings and due to Ramagundam's low generation referred to earlier which will have a serious problem unless there is a generous North East monsoon. Another similar state is Orissa which faces a shortage of over 500MW and is likely to face this shortage for all of the VIII Plan due to delay in its hydel projects-Indravati, Kolar, Rengali etc. Rajasthan will have 40 per cent power shortage during the VIII Plan, its Rs. 130 crores due to NTPC curtailing its investment. Karnataka which has had a good inflow into its reservoirs has removed its power cuts except for HT users, who will have to bear the brunt of the 31 per cent power tariff increases which has been imposed, West Bengal's power situation is on the mend with the commissioning of its Kolaghat thermal plant. Two general questions may be briefly reviewed. It is good that State Energy Conservation cells are being set up to economise on the use of energy which is needed in view of the growing gap between availability and demand for energy. Also the decision of the government to raise the share capital of the National Hydro Electric Corporation (NHEC) from Rs. 1300 crores to Rs.2500 crores should be welcomed. It is hoped that the paid up capital of Corporation will also be Rs.1300 crores. This will enable it to take up a number of new projects and commission 5 projects during the Eighth Plan. This is particulary important because about 80 per cent of the country's hydro power is untapped. According to the latest data given to Parliament, only 29 per cent of the installed generating capacity is hydel and this will decline to 25 per cent by the end of the VIII Plan. The reasons for this rather scandalous situation,

which unlike other countries were hydel provides 40-50 per cent of power, near half of what is this country's status are multifarious of which seven may be highlighted, namely a) the inescapable resource crunch, b) obsolete construction methods which prolong the gestation period, c) the thermal lobby and the resistance from pressure groups, d) wrangles over environmental clearances, e) problems on rehabilitation of those displaced and f) inter-state water disputes. One way forward is to replace the current reliance on big dams and huge hydel projects by medium and small projects similar to what the World Bank is currently sponsoring with 4 southern states and Punjab(see Vol XX p 353). The other issue is the entering of the private sector companies into this area of power generation. NRIs and some foreign companies have proposed 9 projects for setting up units with 3150 MW capacity involving an investment of Rs. 3000 crores. The proposals are from GR Swamy for a 420 MW plant at Neyveli, from Consider Shipping for 100 MW ship barge mounted power plant, from Century Textiles of Birlas, from Ballapur industries of Thapars, from Essan of Ruias, Niphon Dendras, and Nordic Invest. The problem of the resources which will have to be the major extent from private sources and the tariff to be charged are under study. This is a needed development but for the VIII Plan will involve only a marginal relief. From this point of view, it is encouraging that the union has cleared two private sector power projects for Maharashtra — a Rs. 1200 crores gas based project at Uran to generate 800 MW and Rs. 700 crore thermal project at Khapadeda in Nagpur district to generate 120 MW. On another important matter, the perennial losses suffered by the State Electricity Boards, the conference of states power ministers in September has decided to set up regional advisory committees to determine "an appropriate structure for sale of electricity in the region". This is good as far as it goes in fixing the tariff structure of union power stations in the region and advising state electricity boards on viable rates for different categories of consumers. The major issue here is the subsidy to the agricultural sector (and the lack of maintenance and overmanning). Whether the Boards will have the courage to face the subsidy question will be the test.

Water

With good rains in the cauvery delta at the end of the month (80 mm in one day, (making it a surplus rainfall district), and the Mettur level going up by releasing less water from it, the agricultural prospects of the state are looking up. On the Krishna water project for providing Madras with drinking water, with the meeting of the 3 chief ministers of the concerned states — Maharashtra, AP and Karnataka — agreeing on means of dealing with the problem of surplus waters on which 4 proposals have been advanced, it looks as if the Madras city drinking water problem is nearing solution. Meanwhile the late September rains have added 60 mcft storage to Red Hills, making the storage of 549 mcft, which could go upto 600 mcft.

Transport and Communication

The East coast road is, with the help of the union government and ADB, running through Madras-Pondicherry-Cuddalore - Nagapattinam - Ramanathapuram - Tuticorin - Kanyakumari — a

length of 737 km — now being developed in phases into a National Highway. Its justification is multifaced — economic development, enabling the backward districts and villages to host industries which can also use the port facilities at Pondicherry, Cuddalore and Nagapattinam for trade. The existing east coast road carried 2456 vehicles including 1058 commercial vehicles a day, while the Grand Trunk Road carried 5358 vehicles a day including 1725 commercial vehicles — and Tourism with the major pilgrim centres of Mahabalipuram, Chidambaram, Karaikal, Nagore, Nagapattinam, Velankkani, Poompuhar, Rameswaram, Tiruchendur and Kanyakumari which will be served by the Highway. The economics of this transport project is difficult to work out. One technique is to work out the economic internal rate of returns on the investment, which is its rate of return, which if higher than the rate of interest payable on open market capital, is regarded as viable. Further, savings in operational cost of the east coast road has been computed at Rs. 1287 crores. The savings in fuel consumption as a result of the Highway is estimated at Rs. 60 lakhs a year. Taking all these into the account, the economic internal rate of return is worked out at 27 per cent. Even so, it does not take account of the opportunistic benefits from development of industries in the coastal villages, the benefit from the 1000 hectares prawn culture in the Thanjavur district, ONGC's plans to extend its explorating activities to the Ramanathapuram district and the cost and benefits of the tourism centres. Similar consideration applies to the Rs. 10 crore World Bank's aided city bridges to be extended to North Arcot and other areas. The Rs. 244.33 crores supplementary estimates approved in August by Legislative Assembly will also contribute to infrastructural development in the metropolitan areas. It is now also dawning on the metropolitan planning authorites (MMDA) that with the additional 1 million workers who will be entering the labour market in the city in the next two decades, the city's land use planning to meet the housing needs will have to be supplemented by economic planning. With large industries in the metropolitan areas being disallowed (their employment potential was both limited and declining anyway), and the growing sickness of small scale industry in the city and the state, the expansion of low wage employment in non formal sectors seems unvoidable. What is needed is for the State Planning Commission and MMDA to build in economic planning into land use planning in their long term Plan for the city, which will have an addition of 36 lakh persons by 2011, needing 800,000 additional housing, of this about 30 per cent will be persons with non formal employment and with low and uncertain wages. This means a new urban management system, covering the private sector's major role in housing and employment, and water supply to meet a shortfall of 230 million litres a day and spatial planning. Metropolitan planning thus becomes a complex multidimensional exercise for which the planners should be trained. The commissioning of the Rs. 80 crore floating dry dock of 14,000 tonnes and 24,000 tonnes at Madras port raises the question of the need for the development of ship servicing facilities in all the major ports of the country, which will replace the current dependence on Singapore or Bahrain or Glasgow etc. Also with the new dry dock having a capacity of servicing vessels upto 40,000 dwt. the need is for Indian

Industrialists to use Indian Ships and shipyards. But for this, the shipyards will have to replace their obsolete technology, the occasion of developing the satellite port at Ennore being one occasion for such modernisation.

Social Service Schemes

Rural sanitation is still being operated on a pilot project basis. Under the Central Rural Sanitation Programme, the Intensive Sanitation Programme being operated in the Periyar project covering 13,125 households involving construction of 35,000 low cost sanitation facilities needs to be evaluated particularly on its cost aspect in order to spread the project more widely. The Periyar project is regarded as a success and the factors making it a success need to be identified so that they may be replicated in a situation where the other rural sanitation projects are lagging and facing problems. The cost aspect needs to be balanced with the benefits involved, when according to WHO, 80 per cent of the diseases in rural areas are due to lack of sanitary facilities, affecting 15 lakh preschool children below 5 years, and involving the loss of 180 crores of man hours of work. Another successful programme is the state's integrated Nutrition Programme which the World Bank has offered to assist with Rs. 235 crores in its second phase, as the first phase is nearing completion. This 6 year programme needs to be carefully monitoried as it is aimed along with the ICDS blocks, to cover all of rural Tamil Nadu. Another completed scheme in the state is the debt relief to 17 lakh farmers involving the writing of Rs.487.86 crores of debts, which will rise to Rs. 500 crores when the few remaining outstanding cases are dealt with. The effects of the loan waiver on farming practices, inputs and future debts needs to be monitored, which will have to be compartmentalised, as 8.28 lakh beneficiaries are relieved of Rs. 205.20 crores debts from cooperative banks, 7.53 lakhs relieved of Rs. 207.01 crores from IOB and other public sector banks and 1.6 lakhs relieved of Rs.72.77 crores from land development banks. The state which is the first major state to write off the loans needs some help from TNAU in this monitoring exercise. The Union government is now extending the scheme to weavers and artisans in urban and semi — urban areas. Another programme sanctioned by the government is the Rs. 2.80 crore World Bank and UNDP aided scheme to save ground water and stop the further intrusion of sea water in the Minjur coastal area. This involves identifying areas for digging injection borewells, each being separated from the other by 2000 metres and with a depth of 45 metres. This programme should continue to be monitored as one third of Madras water supply is from 76 wells located in Minjur and 5 other coastal belt areas. The government announced during the brief August Assembly session 3 DA instalment of Rs. 10 each to 32,000 village servants which with the Rs. 100 increase in their consolidated pay will cost the government Rs. 1.14 crores — which through calls on its limited resources, is a priority in relation to the DAs to the government officers.

National

Eighth Plan

The Planning Commission's decision in September to establish the total

investment of the VIII Plan at Rs. 610,000 crores (compared to Rs. 325,000 crores for the VII Plan) with the public sector outlay of Rs. 335,000 crores (Rs. 280,000 crores investment and Rs. 55,000 crores as revenue expenditure) which is a 86 per cent increase in nominal terms and 34 per cent in real terms over the VIII Plan, seems a rather large financial jump in view of the current and perpective resource crunch facing the economy. Is this day dreaming and flying in the face of the kind of constrictions also imposed by the Gulf crisis ? That there is an element of faith and hope in the financial dimensions established may be conceded, but if there is to be an Eighth Plan at all, it has to be of this order. This kind of financial level will call for the utmost financial discipline which has been sadly lacking so far, the control and reduction in non development expenditure including continuance of subsidy schemes into investment programmes and elimination of untargeted subsidies ; all of which have so far been a matter rhetoric, and above all the efficient running of public sector enterprises, which are expected to generate an almost impossible Rs. 100,000 crores as surplus along with mobilisation of additional tax and non tax revenues of Rs. 25,700 crores. It is also clear that this level of outlay which a 5.5 per cent Eighth Plan growth and 22 per cent of GDP saving call for, are at the limit of what is possible both in terms of growth rate and financial outlay. Within this overall outlay, Rs. 20,000 crores are proposed for the farm sector which is an 80 per cent increase over the Seventh Plan's Rs. 12,861 crores, along with Rs. 27,000 crores for irrigation, Rs. 30,000 crores for rural development which moves the rural outlays of the VIII Plan towards the 50 per cent target. Per contra, the allocation for industry is kept down to Rs. 23,600 crores which is 7 per cent of the Plan outlay against 10.95 per cent in the Seventh Plan. This means that the allocation is barely enough to take care of the needs of industry projects continuing from the Seventh Plan, with only Rs. 2000 crores for new starts in both the union and states, and which rules out any large new projects to be started. In reality the responsibility has been tilted in favour of the private sector which will now have to carry the ball as far as industry is concerned. On financing, it is to be hoped that the proposal to reduce the dependence on borrowings, internal and external, and to keep market borrowings and deficit financing to around 25 per cent of the total outlay will be adhered to. Further, the financing pattern of the projects as between the Union and states is yet to be finalised and approved. The decision of turning over the so called centrally financed and centrally sponsored projects to the states is sound and should be adhered to. Already some cracks are beginning to appear in the proposal that the union will transfer 85 per cent for such projects, holding back 5 per cent for R&D, techhology department and transfers to the schemes and meeting the cost of monitoring the projects. Further, while it has been decided to transfer 90 per cent to the states, holding on to schemes involving several states and heavy R&D, this transfer is to be phased over the 5 years of the plan and the 230 schemes are to be financed as at present from 100 per cent for central schemes like rural labour employment programme to 80 : 20 for Jawahar Rozgar Yojana and 50 : 50 as in IRDP schemes. Various objections are being advanced against

this scheme of decentralisation, so that the NDC will have to pronounce itself clearly on the principle and its application to avoid it being side tracked. The Rs. 49.6 crores supplementary demand passed by the monsoon session of Parliament shows the source of financing, of the purpose which largely is providing a loan to SIDBI matched by IDRI enhanced dividend and the finance for effluent treatment plants in industrial estates.

Prices and other fiscal matters

The price rise for August was a marginal 0.6 point, the whole sale price index for the week ending August 25 standing at 179.5. At this level, the rate of inflation as measured by whole sale price index between March end and August end declined to 7.4 per cent compared to 8.8 per cent for that period in 1989. This was due to the decline in primary article prices, a fall in prices of food articles, stable prices of power, fuel and light and a rise in non food prices. However the government acknowledges that the price of articles of common consumption including foodgrains, fruits and vegetables and edible oils have shown sharp increase during the year, with the price of wheat recording a substantial increase at a time of a plentiful harvest. The price of cement and sugar was reduced through governmental action. The whole sale price trend though easing during August, is still at a high level and gives cause for concern for the balance of the year. In keeping with his promise to present a periodical report on the budget deficit, the finance minister presented to the monsoon session the fact that the budget deficit as at the end of the first 4 months (July 31) was Rs. 9996 crores against Rs.11,390 crores at the corresponding date last year. While it is satisfactory that the budget deficit is Rs. 1500 crores less than at that time last year, there is still room for disquiet on several grounds. First, comparing this year with last year's election fiscal Profligacy does not help. Second, the estimate that the full year's deficit will be between Rs. 7900 crores and Rs. 8500 crores against the budgeted Rs. 7200crores is worrying. Third, the current imbalance is due more to the decline in revenue and not only in the expenditure levels which are being restrained by the 10 per cent cut which has been imposed. Rather it is the lack of buoyancy in tax receipts, (the black money drawals being a non-starter), the problem projected by the oil corporation committee funds which due to higher oil import prices makes the projected drawal of Rs. 1400 crores difficult. Fourth, the deficit is being kept down by the level of market borrowing under which the union government completed the second tranche of borrowing in mid August of Rs. 1296.17 crores net (against repaying Rs. 717.83 crores) (the states having raised Rs.1430 crores plus Rs. 1134.77 crores from the market) and which raises the question whether the deficit should be defined as at present without taking into account the level of market borrowing. It is against this that the RBI Annual Reports (1989-90) plea for strong adjustment and adoption of policies for enhancing revenue and cutting expenditures as well as the need to trim imports in order to counter the balance of payment deficit should be seen. Finally, on the positive side the technical note presented by the minister on the methodology used to compute the deficit is welcomed as it raises many issues demanding further study and comment by scholars. During September, the Bombay Stock

exchange governing board continued the ban on forward trading, the stock brokers at the Calcutta exchange are asking for a revision of under writing broker charges, the Bangalore Exchange is deciding on its trading complex-all of which raise the issue whether these various measures for change and reform of the stock exchanges are not somewhat peripheral and almost cosmetic. Imposition of margins and collection of deposits as was decided in August by the Bombay Stock Exchange are set at naught by the brokers who make several times the prevailing imposts. The basic problem is that stock exchange can only run by self regulation, by regulation from within and not from outside, whether it be the government or the governing board. Such self regulation which will result in order lines is needed particularly when the stock market is booming as it is at present. Should carefully selected, objective outsiders be involved in the governing boards to ensure even handed, unbiased decisions? Meanwhile the margins should be fixed at high levels, enough to really penalise a habitual offenders.

The Economy

August/September seems to be the time when there are a plethora of reports and reviews of the economy. The World Bank has two reports on India — one its policy of self reliance and lack of outward orientation and the other on the need to reduce protection and benefits to its labour in order to provide an exit for firms embroiled in losses, as well as a third reference in its Annual 1990 report in which India and the third world countries are advised to undertake fiscal consolidation and reform without cutting essential public investment in the physical and social infrastructure. There is the IFC annual report which calls attention to fall in the growth rate in India which this year will be a record. There is the RBI Annual Report for 1989-90 (referred to earlier) which estimates that 1990-91 may register within a 7 per cent growth, that industrial production may grow at 5 per cent along increased foodgrains and other agricultural production items, with concern for the price situation, long term external debt increases and concern over growing fiscal deficits, with a certain ambivalence on its appraisal of the external sector. In last year's report,the large difference between the DGCI&S data on imports and that of the RBI which has increased from Rs 5 crores in 1981 to Rs. 6319 crores in 1988-89 does not go along with this year's report's reference to the "silver lining" and the robust growth of export — which are really non existenct. There is also the quarterly report of NCAER which urges RBI to ease credit controls to help industry facing a credit crunch. Out of this mass of review material some questions arise. First, the World Bank's repeated advise to adopt a more outward oriented policy is supplemented by its advice to give up self reliance. The case for the advise is not made, as Bank itself states that the policy of self reliance has helped the country to develop a large viable industrial infrastructure which produces 100 per cent of all the consumer goods needed and most of the intermediates and capital goods. The competitive nature of the goods in the export market is important as a second priority. Similarly the need for an exit for the sick industry is accepted, but this need not only be through cutting back on labour's benefits. The control of the managements raiding of the industries in question also needs

to be investigated. The need for fiscal reform is one of the accepted major themes of the Finance Minister's August presentation in Parliament but it will involve some modification in the physical and social infrastructure. On the RBI and NCAER reports, the structural changes taking place in the financial system, under which the share of the bank deposits in the gross savings being replaced in part by higher returns yielding investment instruments, the emergence of financial institutions as major intermediaries as seen in the increasing share (from 27.6 per cent in 1981 to 33.6 per cent in 1989) in the total assets, and the need to review the heavy social obligations are to be noted and will raise questions on the pattern of financing government obligations. In this connection the RBI warning that the rural debt scheme might, if it continues, lead to the collapse of the rural credit system is sound and has reference to the schemes as reported earlier from Tamil Nadu. The ICICIs decision to concentrate its activities in the VIII Plan on the 4 key areas — exports, electronics, services and technical development — is related to the economic reviews of RBI and NCAER and is sound. One other realistic evaluation relates to the failure of the Industrial Drinking Water Supply and Sanitation Decade globally must be accepted along with its possible positive effect on the guinea worm disease campaign which could be the second disease to be controlled in the country.

Industry

As noted earlier, the Planning Commission's financial estimates for the VIII Plan are based on an 8 per cent Industrial growth, which seems high enough in relation to the 1989-90 (the base year) performance. The Industry ministry projects a growth rate in the current year, 1990-91 of a minimum of 10 per cent on the basis of the high growth rate of 13 per cent registered for the first 2 months of the year — April and May, over looking the fact that this seemingly high growth rate is a) based on a low base of 2.5 per cent in April-May 1989 and b) more particularly, also based on manufactures which recorded a negative rate (see Vol. XX, p. 360) in April-May 1989 which shows on that base a high growth of 15.6 per cent in April-May 1990. Is there any reason to forecast a higher growth rate for industry during the current year over that of the last 2 years, in fact over the entire VII Plan, when there was run away consumer durables demand as noted in (Vol. *XX*, p. 256, 315, 411) which even so resulted in an average growth of less than 8 per cent ? UNCTAD in its 1990 Trade and Development Report shares this optimum in predicting a rise in industrial production this year, which based on national reports raises the some question as referred to above. The International Finance Corporation in its 1990 report lauds the performance of the private sector in the past 2 years 1988 and 1989, which the RBI surveys do not quite support, and explains this as the cause for the success and increase of the new security issues and the buoyancy in the stock market, which are conceded. The problem of industrial sickness especially in the small industry continues to cast a shadow on the industrial scene. RBI reports that over all more than Rs. 7000 crores of bank credit are locked up in industries and that in small industries the number of sick industries have shot up from 1,58,226 in June 1987 to an alarming

2,17,436 crores in June 1988, with the credit in them increasing from Rs. 1542 crores to Rs. 1980 crores. The causes for this serious situation is both multifarious and varies from area to area, even from unit to unit. The operating factors vary from poor payment practices by large units who buy the products of the small units to misleading the derived conditions and poor market assessment (which might be alleviated by the 3 new marketing schemes introduced by the Small Industrial Development Banks) the honesty of owners and the special position of the industrial group like Textile Mills. Does this not mean that BIFR should be fully supported in its approach on a case by case basis to this problem in terms of both diagnosis and remedy? Here the hiking of interest rates will add to the problem of small units particularly in the textile sector, though the one positive point is IDBI's modernisation fund which is being fully availed of (already Rs. 1500 crores have been sanctioned), but there is the non availability of it by the sick mills, which raises the need for an integrated approach to modernisation. This is one of the issues under study by the Finance Minister. One thing, however, is urgently needed and that is to create conditions for the exit of unviable sick units. The present position where entry is strictly regulated and exit is banned by the government means that there is no early remedy to sickness. Sometimes increased production in our industry can create its own problems as seen in the sugar industry where the record production of 110 lakh tonnes for the sugar year 1989 (October) — 90 (September), where there is an ongoing battle between government and producers on the new guidelines for new factories and relaxing of licensing norms on radial distance, and the rise in sugar production costs, between wholesaler and retailer, on the obstacles to lowering the prices. In this complex and controversial battle over the price of sugar which has not been allowed to shoot up is still higher than what the consumer is entitled to in light of the large production. From this point of view, would the new licensing policy help? One development which will help industry, particularly in the private corporate sector, is the formation of the "over the counter market" (OTCE Exchange) which brings together 8 financial institutions (ICICI, UTI, IDBI, IFCI, LIC, GIC, SBI, Capital market and Can bank Financial Services) with an authorised capital of Rs. 10 crores. As this further opportunity for raising capital gets under way, the manner in which it operates with licensed dealers, investors and other involved in "market making" needs to be closely followed and monitored.

Public Sector enterprises

In this area, September brings the usual tones of light and shadow. On the side of light, if the decision of the government to grant more autonomy both to the 26 chronically loss making units, which should include the preparation of steps that any unit can take to sell, merge or liquidate itself and the 78 low profit making units is effectively carried out, there will be a marked difference in the public enterprises profits. The memorandum of understanding to be signed with each of these 104 units could be a step in the right direction, if the autonomy for the management conferred by the decentralisation enables the unit to be turned around, or in the alternative liquidated. The public is still waiting for the first perennially loss

making unit to be closed. On the side of the shades, the periodic announcement that the units are or will be making profits, as the report of BPE that the units will make a profit of Rs. 3500 crores in 1989-90 which is similar to its statement last year that the 1988-89 net profits of the units were Rs. 2981 crores, is misleading because it is a global figure, not bringing out the fact that the net positive status is entirely due to the oil sector and not related to the falling rate of public sector savings from 4.5 per cent in the 70s to 2.3 per cent in the 80s, increasing the government and public sector's overall deficit from 5 per cent of GDP to 8.6 per cent during that period, as the World Bank's India study titled "Recent Developments snd Medium Term Issues" shows.

National Production Front

Steel

The steel scene in September presents a dismal picture on several counts. First, unlike the cost reducing equipment and productivity of the steel plants which in Japan have reduced costs by 25 per cent and 8 per cent in the US, Indian steel plants have increased their costs by 125 per cent between 1980-87 and their prices of structurals, angles and channels have shot up. The Joint Plant Committee's announcement of across the board 5 per cent rise in base prices of iron and steel materials is one reflection of this. Second, the gap between availability and demand is widening. This makes SAIL's reported profits of the plants in 1989-90 of Rs. 225 crores somewhat unreal. The parliamentary consultative committee was informed in September that during April-August of the current year crude steel production at 3.31 million tonnes is 17 per cent below target and saleable steel at 2.66 million tonnes is 12 per cent below target. This is part of the gap facing the economy by the turn of this century when SAIL plans to produce 15 million tonnes against the total demand of 31 million tonnes. For the present the production short fall are attributed by the plants — Bokaro, Bhilai, Rourkela to power unavailability and coal. Will the VIII and IX Plan provisions for increased power capacity and generation, modernisation of coal mines (drag lines, shovels, dumpers etc.) increase production and bring down costs? These were the aims in opening the secondary steel sector to the private sector in terms of capacity and technology as elaborated in Vol. XX, p. 412-413. This is now carried further in liberalised guidelines issued in September which spell out the additional capacity use of modern electric are furnaces and not to encourage any further large integrated plants with conventional blast furnaces. One other problem which needs attention is the sharp fall in scrap generation which the switch to the continuous casting route of Bokaro, Durgapur, Rourkela and IISCO involve, which with the world shortage of scrap will further push up scrap prices and so call for early planned action on the projects for production of pelletised and lump ores.

Crude

The major issue in the crude field is the effect of the Gulf crisis — on the availability and price of crude. First, on the price, it has already during September shot up from $ 14 per barrel to $ 39 per barrel (as of September end) which involved an additional Rs. 3000

crores for the year for import of crude. There will be no surplus of Rs. 1400 crores from the oil pool account to the general budget as assumed in February. Over a full fiscal year, the deficit in the pool account will be Rs. 6500 crores. The World Bank warns that if the crisis is not resolved crude prices could shoot upto $ 80 per barrel and if resolved this year, will mean crude prices of $ 50 per barrel for 1991 and $ 40 for 1992, remaining at that — level till 1996. With this grim scenario India's actions todate are totally inadequate. One is to increase domestic production of crude and intensify exploring: this is necessary but will not raise domestic supply above 50 per cent of the need. A second is the 12 per cent excise hike on new cars and no Sunday use of official cars. What needs to be faced and acted on is i) an immediate rising in petroleum product prices, particularly because they are below international prices. If this were not done, the subsidy from the state will double the budget deficit. ii) all motor traffic should be stopped on Sunday and the economical use of petroleum products enforced — on commercial and private vehicles, agricultural pumpsets and kerosene stoves. Despite all this, there will be an increase in budget deficit of upto Rs. 4000 crores and the balance of payment deficit will also increase by an equivalent amount. This has implications for the possibility of a supplementary budget and for cutting back on the standard of living of the upper deciles of society.

Coal

On coal, the only development in September is the release by the Planning Commission of the Report of the Working Groups on coal and lignite. This shows that underground coal declining in quantity and that from open cast mining increasing, which previous issues of the Bulletin has criticised as it reduces the quality of coal and produces coal with high ash content. Second, the report shows that the declining quantum of underground coal is due to obsolete machinery which together with the excess of manpower is pushing up the costs of coal. What is now needed is a) to mechanise the underground mines using modern uptodate machines (with the Rs. 500 crores World Bank aid) and b) trim the manpower from 7.46 lakh workers to 7.06 lakhs by reducing the programmes in underground mines, which its modernisation and mechanisation will make possible. Can this be done? Are incentives needed in the form of retraining and redeployment to get the unions to see that it is in their interest to cut back the swollen work force ?

Agricultural Production

The very good south west monsoon recording normal to excess rains in 31 out of the 35 meterological subdivisions ensures a record kharif crop, with foodgrains as 101.75 million tonnes, with Haryana, MP, Maharashtra, Punjab, Rajasthan and UP exceeding their targets, (rabi is expected to produce 76 million tonnes, which means the total foodgrains production in 1990-91 could be 178.2 million tonnes). This bumper crop is spread over a wide area assisted by the agro climatic zones approach, involving systems planning for all crops, livestock and related activities in an integrated manner, along with a 25 per cent increase in irrigation — both of which will also benefit the rabi crop. The two lagging areas are pulses and oil seeds. Will the proposed pulses

strategy involve multi-cropping, sequential cropping, inter-cropping and the use of early maturing varieties and summer cultivation raise pulses production above the 1988-89 high of 137.03 lakh tonnes (it declined to 134 lakh tonnes in 1989-90). Similarly oil seeds production is being streamlined merging the National Oilseeds Development Programme and Oil Seeds Production Thrust Programme into the oil seeds production programme along with and above removing the defects in their operation such as the disbursal of oil seeds, sub normal use of seeds, inadequate flow of benefits to beneficiaries etc. There is no reason why the country with the largest number of oil seeds — groundnut, rape and mustard, seasame, kardiseed, niger seed, soya bean, sun flower, linseed, castor seed, cotton seed, copra and a number of minor seeds of tree origin, grown over 19 to 20 million hectares should not with this year's good rains have a bumper oil seeds crop and cover the scandalous gap in the demand and supply of edible oils. One result of the last good kharif and rabi harvest is the bursting food grain store positions, rabi procurement of wheat reaching 23 million tonnes and rice 12 million tonnes. The food stocks are 20.3 million tonnes at the end of June 1990.

Foreign Trade

The grim problem facing foreign trade and the Balance of payment was earlier referred to under the crude sub section. In addition to the issues raised there, it should be noted that the embargo on trade with Iraq and Kuwait and the embargo — generally will reduce India's exports. The trade deficit in April-July 1990 before the Gulf crisis erupted was Rs. 3349.85 crores, being an increase of Rs. 310 crores in the deficit. The various measures to increase the foreign exchange flow to counter the rising of the import bill because of crude imports and the dwindling remittances from Indians in the Gulf countries include : Enhanced quotas for agricultural exports, the clearance of 1 million tonnes of wheat exports, exports of 4 lakh bales of cotton, rupee resources are earmarked for projects for concessional external assistance so that the vast reserves of committed aid amounting to $ 22.5 billion can be brought forward and used earlier, and increase marine products exports, liberalising the debt equity norms for diversified fishing vessels. The export push include the decision not to levy excise on export goods, export of iron and steel under OGL, the plan to grade exporters on the basis of their production facilities and export capabilities, and the extending of the scheme for import of capital goods at concessional rates to new exporters. These are all needed measures but they do not replace a degree of belt tightening which reduction in imports and some degree of expansion of import substitution programmes that will devolve on the country. Another area which should be reviewed and streamlined is, the area of foreign collaboration in which annual payments now exceed Rs. 500 crores. In addition there were indirect payments made through import of capital goods, assemblies and sub assemblies, components, intermediates and technical services from the collaborators. This is an area where there will have to be rather severe cuts. Besides all these prodding measures, some products have registered encouraging export records. Increasing handicrafts exports by 15 per cent between April to June 1990 at Rs. 256 crores means a growth for the year of Rs. 1000 crores, a 72 per cent increase

in exports of engineering goods, between April-July 1990, which the new quota policy having the first cum first served rule will further promote, the surge in the thrust sector exports following last year's 38 per cent rise and the 11 per cent growth in marine product which should be pushed up further and fast. These are rather small streaks of grey in another sombre foreign trade scenario.

Aid and Loans

In this difficult foreign trade and balance of payment situation, concessional loans are diminishing, with a $ 300 million IBRD loan for expansion of cement plants, $12 million credit for modernising the facilities of the Central Institute of Plastics Engineering, and $ 600,000 as technical assistance grant from ADB for preparation of the Vadodara — Bombay express way, and a Rs. 1300 crore Japanese Official Development Assistance for the year. On commercial borrowing, one loan of DM 82.09 million from a consortium of banks by TISCO is reported. It is necessary to restrict commercial borrowing because the debt service ratio has passed 30 per cent, and India's rating in the international commercial loan market is slipping, due to the fact that India is now recorded as the fourth largest debtor nation in the world. The possibility of an IMF loan is again raised, fuelled by RBI's decision to undertake a steady and speedy devaluation of the Rupee against all currencies, particularly the pound sterling, at a time when the economy needs a respite from the continuing depreciation of the Rupee.

International

World Bank & IMF

The annual meetings of the World Bank and IMF were dominated by analysis and the action needed by the 2 bodies to help member nations in overcoming the deleterious effects of the Gulf crisis, on which not much progress was made. The heads of the World Bank and IMF in their annual report to the meetings and in their addresses have called attention to the grave threat posed by the severest oil shock that the countries with serious balance of payments problems face. In fact, the World Bank President stated that the Gulf crisis threatens world peace and should be quickly resolved. The IMF in its reports warns that the oil shock will spur inflation, particularly in the economies of oil importing countries like India. The regrettable fact in this situation is that the G-24, the Committee representing the developing countries, did not have an agreed position on the proposal of India and some other developing countries to create a special oil facility in the World Bank - IMF, and so the proposal had to be dropped. The G - 7, comprising the top industrial countries, has readily accepted the need for additional subsidised assistance for nations affected by the Gulf crisis. In a sense the G - 7 was more forthcoming than the G - 24 in helping to meet the serious problems faced by the countries like India. But there is a catch to the G - 7 offer of world Bank - IMF assistance and it is a policy of monnetary and fiscal reforms which is made conditional for receiving the emergency assistance. That is, the Group of 7 wants stability oriented monetary policies and sound fiscal reforms to provide a correct response to such assistance. Already the World Bank's structural lending and IMF's stand by credit involve enforcement of adjustment policies. If to this is to be added the imposing of IMF's straight jacket of monetary and fiscal restrain and what it regards as

realistic exchange rate policy, the assistance will never reach the countries in need. It was hoped that by the end of the meetings good sense will have dawned on the G—7 so that urgently needed assistance is available with the needed flexibility. In any case both the World Bank and IMF are not to be equipped with any special resources to meet the oil importing developing countries' crisis. They have decided to use the existing instruments and resources to provide this help, which bypass the rhetoric at the opening session. Till the end of the meeting, the IMF Managing Director insisted on this position. At the urging of the World Bank President, however has decided to launch a 'Special Oil Facility' as a last resort, if the Gulf crisis continued beyond this year. The World Bank President stated that the facility will be a concessional lending facility parallel to IDA but not exactly like it.

World Economy

Well before the Gulf crisis, the World Bank's analyses of the economy shows that the world economy will witness a sudden spurt in oil prices, persistent inflation and slower growth in industrial countries which will weaken the economies of the developing countries. Similarly the Annual Report of IMF drafted before the Gulf crisis proposes as a remedy to the weakening economies and balance of payment problems of the developing countries, the devaluation of their currencies as the remedy, ignoring the absence of exportable surpluses and ready markets abroad for these countries products which will result in raising the cost of their imports, including the machinery they need for industrialisation. Similary UNCTAD in its annual report for 1990 warns that the world economy is heading for a recession and it is developing countries which will suffer most from this economic slow down. One result of the rising oil prices is that the developing countries will have to use more of their exports earnings to pay for lower oil and other imports. There is the possibility (which many would welcome) of the international debt strategy becoming one of the first economic casualties of the Gulf crisis, if it is prolonged. There is an interesting issue on how far the $ 51 billion received as concessional aid by the developing countries have helped to reduce poverty and improve the living conditions of their poor. The results are mixed, being positive where the aid has been used on developing agricultural research and education, construction of rural infrastructure, provision of primary education, basic health care and relief from natural disaster. But where donors have other strategic consideration in providing the aid, where they prefer to invest in physical capital infrastructure, where it develops an aid dependency syndrome, where the government's commitment to remove poverty is not total and clear, aid has not helped reduce poverty — as has happened in the majority of countries. In any case the relation of foreign aid to the commitment to relieve and remove poverty is a tenuous one and not a linear direct one.

GATT

Will the multinational trade negotiations now in progress in Geneva result in an agreement to reduce trade barriers? From current trends it looks as if there will be an agreement but it will be one which will meet the needs and desires of the US and the industrial countries. In the coming 3 months, from September when the Uruguay round concludes

with the ministerial meeting from December 3 to 7 in Brussels, the unresolved issues will have to be negotiated if the round is to be successfully concluded. There are the 4 new areas in the first tract of the round — namely Trade Related Intellectual Property Rights (TRIPS), Trade Related Investment Measures (TRIMS), GATT articles and GATT's functioning. The industrial countries have in the 4 rounds to date, having achieved a reduction of tariff barriers among themselves, are now concentrating on the new areas. For the developing countries, the tariff barriers are a reality and so the liberalisation of trade in tropical products, natural resource based products, agricultural products and textile and clothing is for them a priority, with agreement to the ending of MFA being at the top of the list. There is both lack of interest and commitment of the industrial countries in these areas of negotiations and where they express their views on them clearly, as in MFA, the EEC, for instance, has attached so many conditions for its abolition, that it amounts to negating it. For India, the test of the success of Uruguay round is the decision on MFA. If this is not decided, the Round for India and many developing countries will have been a failure and waste of time and manpower.

The International Drinking Water Supply and Sanitation Decade (IDWSSD)

1990 marks the end of IDWSSI, as noted earlier, and an evaluative conference this year on the programme has concluded that as a result of the Decade's efforts 1.5 billion people out of the 5 million people in the world are still without safe drinking water and 2 billion without adequate sanitation facility. Within this global data, it is noted that more people are going without safe drinking water and sanitation now than at the start of the Decade in 1980 in urban areas and this will worsen as the number living in urban areas increase from one third today to 43 per cent by turn of the century. What is the way forward and out? The proposal to cut targets and costs in the name of realism is the way of defeat. What is needed is the development of the same kind of political will on this as is being demonstrated on the Gulf crisis and production of armaments. There is also need to decentralize the programme and invest local bodies — panchayats and elected urban bodies — with powers — financial and regulatory— to deal with the programme so that there can be real commitment and participation of the people. Here there is a price tag, for nothing should be given free and people will have to be charged for the facility. Will we be willing to make such charges and will the people pay?

* * * * *

II. Agricultural Development in Tamil Nadu

Paddy and other crops

The farming scene in September presents many short term and long term issues. On the short term, with the good rains in September, particularly the second half in the major farming areas in the state, paddy cultivation by the farmers is being extended over last year's 19.50 lakh hectares to around 25 lakh hectares this year. If there is a normal North East monsoon, farmers will

use the rains for cultivation of samba paddy for 5-6 weeks and allow Mettur, which has currently a storage of 55.61 tmc ft (against the full storage of 93.47 tmcft) to hold its water for the January-February period. A good North East monsoon will also help farmers in North Arcot, Chengai-Anna and most southern districts to grow paddy, pulses, oilseeds and cotton in adequate measure. To assist the farmers, district cooperative central banks have targetted Rs. 260 crores of short term credit, as all those farmers entitled to debt relief have obtained it. This also applies to their access to fertilisers and quality seeds. The one negative point in the farming picture is because of the late opening of Mettur, farmers have been able to grow kuruvai paddy over 80,000 acres against the normal 4.25 lakh acres in Thanjavur district. Here there is an issue. Both farmers and the state government and people must now accept the more limited kuruvai acreage as normal and not keep harking back to the old figures. On the long term issue, as the lag of the state in inter state and all India growth and development has been traced by and large to the poor performance of the state's agriculture (see Tamil Nadu Economy pp 132 and following) it is important to note that in the 80s Thanjavur farmers increased paddy production from 12 lakh tonnes in 1980 to near double at 23 lakh tonnes in 1989-90 and with 75 tmc ft of water in 1987 and 170 tmcft in 1989 against 300 tmcft in the seventies, reducing the cultivated paddy area by 1.5 lakh acres. And further replaced the traditional 4 lakh acres for kuruvai, 6 lakh acres for samba and 1 lakh acre for thaladi by a single samba crop over 10.5 lakh acres, making up with increased productivity by using short term high yielding varieties like CR 1009, summer ploughing achieving a per acre yielding 5.2 lakh tonnes. Farmers had a periodic rise in paddy procurement prices (the latest by Rs. 20 a quintal from September 16), but whether these cover their mounting cost of production is a question. This issue is hidden by the fact that the government gives an incentive payment of Rs. 35 a quintal in the monopoly procurement areas. if the farmers keep up the records that they have built for the 80s into the 90s, agriculture in the state will cease to be a lagging point and could become a propeller of growth.

Research results

In farm research, there are long term and short term and combined long term and short term programmes reported in September. On long term research, the agricultural biotechnology research for the present centred on the four major crops of rices, wheat, mustard and chickfeed to be expanded later to groundnut, green legumes and vegetable and forage crops, through the 3 of the 5 planned centres including the one at Tamil Nadu Agricultural University — is important and is the only means of meeting the foodgrains, pulses, oil seeds, cotton needs which will double / treble at the turn of the century. This is one answer to the question posed as to how the country is to meet its vastly expanded quantum of agricultural products needed in the future. Another long term project which has great potential is the Madurai Kamaraj University in the Centre on Technology Development and Demonstration on Algae Fertilisers sponsored by the Union Department of Biotechnology which is establishing 6 algae biofertiliser parks starting in Madurai and spreading to all over the country. The use of these biofertilisers will

increase rapidly paddy production in the state and country. In September 45 short term research reports have been received from 40 research agencies : one common problem raised on their results is the means and time lag involved in transferring them to the farm. In this regard the AM Murugappa Chettiar Research Centre has put into operation the research results on wind breaks. It has over a period three and half years (1984-1987) raised 11.5 kms of shelter belts on the Rajapalayam coastal belts providing protection from wind erosion caused in part by large scale deforestation over an area of 200 hectares of crops, in particular coconuts, cashew and sugarcane which were being devastated. Similar results have been obtained from AP university, Anantapur using wind breaks to help the sweetlime orchards as protection against wind and hail storms. As an example of long term / short term combined research application, the biotechnology research on rice could also use in short term rice research in many centres, the September report from the Aricultural College, Madurai on chemical treatment which increases rice yield, the treatment of soaking the seeds in sodium molybdents costing Rs. 200 per hectare and yielding an extra income of Rs. 1105 per hectare. Similarly the biotechnology research on cotton could use the short term cotton research results of the research bodies all over the country — in Nagpur, Dharwad, Coimbatore, Punjab etc. where specific new varieties and technologies for UP, Haryana, Punjab and Tamil Nadu have been identified producing LH 886, HS 45, RG 8, MCU 11 etc. Also the Annamalai University Centre's research on weed management of cotton applying buron can be incorporated in it. In short term research, the results reported from the regional research station, Palam, on pulses where the use of short term summer varieties of greengram and blackgram — ML 267, K 851, T 90, PU 19, LBG 20, MBG 162 under assured irrigation alternating with paddy, increases their pulses availability which is badly needed in the country. Another research result (from UAS Dharward) which is important because it helps to increase sorghum — the poor man's food is through following an integrated approach of using pest resistant varieties along with chemical control measures it has demonstrated. This is a case where the next effort should be to transfer the result to sorghum producing farms. In the area of animal husbandry research, the Agricultural Institute, Pune reports that it has demonstrated that cross bred goats (crossed with sanneri French Alpine, Toggenburg and Anglo Nubian and when stall fed increase milk yield 30-50 per cent. This needs to be spread rapidly among animal husbandry farmers through multiplication of frozen sperm banks along side of transferring the laboratory results on the cow and calf research to the DANIDA assisted animal husbandry project in the Pudukottai district.

Tea

What will be the effect of the Gulf crisis on tea exports and domestic availability. Tea exports to Iraq at around 2 million kg per annum and Kuwait at another 2 million kg will now cease ; with the uncertainty ranging over Bahrain, Oman, Muscat and UAE and with the return of masses of tea drinking expatriates from India, Pakistan and Bangladesh, India's export of an annual 20 million kg to the gulf region will shrink this year. This will increase tea availability for domestic consumption,

but should also push compensatory exports to Saudi Arabia and North African Arab countries to prevent a serious dip in tea export exchange earnings. Another issue which has been drawing attention is tea prices in the country which the government last year on the eve of elections decided to keep down or atleast prevent from rising by a double control on tea auction, namely ban on the withdrawal of bid teas and the prohibition of the participation of export buyers in alternative auction. This was a case when the forces of a free market were not allowed to operate. What is the real effect of these two controls ? The tea producers felt that they were an infringement on their right to sell and that together with the ban on export participation in alternative auction this was really a ban on export of CTC teas which brought the tea prices down further. At around the end of the year, the effect of the controls were studied by the government in depth and it was realised that there was a real danger of tea production declining, some tea estates closing and so 11 months after the controls were imposed, they were abolished completely for South India, but they continue in the North. Does this make sense ?

Coffee

In September an important event for coffee occured in India — the International Convention on coffee called by UPASI was attended by India Coffee producers, the minister of commerce and special secretary, the chairman of the Coffee Board, the executive director ICO, the Colombo Coffee Trade Federation head, the Kenya Coffee representative and representatives from USSR, US, the Nordic countries as consumers. Some important question debated at this important gathering arise. Should the International Coffee Organisation be revived by negotiating a new quota agreement by October 1991 as most coffee producers and consumers the world over desire, or should ICO be wound up as Brazil which with Colombia produces 46 per cent of the world's coffee supported by Central American producers wants ? Is it true as widely believed that if a new agreement is not hammered out within the 2 years, that is by September 1992, upto which the agreement has been extended, there will be chaos in the coffee world as the producers and consumers in the world state ? If this be so, then coffee prices must improve. After the collapse of the quota mechanism in 1 year coffee exports were increased by 21 per cent while coffee earnings fell by 30 per cent. To improve the price of coffee, producers (particularly in India) must improve the quality of coffee but consumers must also be prepared to pay the high price for improved quality. Related is the question of improving and upgrading the quality of coffee which Colombia and Kenyan representatives detailed at the convention, from which Indian producers and processors have learned. It is hoped, to meet the changing tastes and requirements and trends of consumers in USSR, US and Europe in 1992. There are the issues that the Indian producers and consumers must face. The first is the need to break the stagnancy in domestic consumption which becomes urgent as the USSR & East Europe, which are India's big non quota coffee importers, are drawn into ICO (which is meeting in Moscow in October 1990, and India is likely to lose this large export market). The stagnancy of domestic consumption is a sign of stagnancy in policy against the dyna-

mism in physical growth. Finally, there is the question of marketing of coffee. The large coffee producers are by majority against the pooling system. Does the system not help them to realise a good price or is it just a means of the government collecting the purchase tax ? What is the alternative ? The minister at the Conference set forth 4 options ; a) continuing the existing pooling arrangement, b) abolishing it by depooling and letting producers market freely, c) partial depooling and d) optional quotas. This is immediately the most urgent problem facing the producers. The small producers feel that the pool system protects their interest. Is this true, and if so can it be ensured in other ways ?

Rubber

In September the price of rubber became a major issue. There are two facets to this problem. First, increased productivity from 770 kg per hectare in 1979 to 1000 kg in 1989, together with the increase in the area under rubber production, has doubled rubber production. But India's rubber price is Rs. 22,000 per tonne compared to Malaysian rubber at Rs. 14,000 a tonne at August end. This pointed to the need for the Rubber Board to further increase the hectarage and for this funds were needed, which led the government to increase the rubber cess to Rs. 2 per kg. The rubber users are upset and want it abolished or reduced. But in early September rubber prices declined to Rs. 18,000 a tonne and so the Members of Parliament from Kerala agitated for STC not to import any rubber and not to release any from its stock and for the price of rubber to be raised to Rs. 24,000 per kg. The government after a study of the situation has agreed to raise the price to Rs. 20,000 a kg. This seems an ad hoc decision. Should not the Bureau of Industrial Costs and Prices be asked to study the issue and recommend a fair price for rubber which will meet the costs plus of the grower and the demand of the users ?

* * * * *

III. Industrial Development in Tamil Nadu

Industrialisation in the State

The industrial scene in Tamil Nadu in September has the usual positive and negative facets. On the positive side, there are the periodic regular meetings of the industrial advisory committee ; regular tripartite meetings of workers, employers and government to promote industrial harmony ; the absence for the present of any power cut, though the delay in coal deliveries, and the Rs. 100 crores cost to the government for transhipping the coal which even so has involved load shedding as noted at the start ; the plans for increasing power generation through the Jayan Kondan Lignite thermal plant and the expansion of Neyveli's 1st and 2nd mine cuts, the government's statement that it would gradually disinvest in all joint sector ventures except in SPIC and Titan Watches ; the launching instead

of the 'Associate Sector' concept where in the government's investment would be limited to 10 to 11 per cent of the total investment as part of its decision to involve itself in industrial promotion and not in industrial investment ; the pursuit of the project for the southern gas grid involving bringing the surplus gas from Bombay High for power generation in the state — Bombay High being left with a surplus of 22 million cubic metres of gas a day after transporting 39 million cubic metres through the 183 pipeline and the fact that the construction of the southern pipe line being the same as that for laying a parallel line to the HBJ pipeline ; the package of incentives and the positive industrial climate; the increasing foreign exchange earnings amounting to Rs. 1000 crores for 1990-91 of the southern engineering units. On the negative side is the two decades of industrial stagnation which has to be overcome; the absence of any large public sector investment which would have a multiplier effect ; the long range limitations on the power front, the better and more attractive incentives offered by other states that has led 3 Tamil Nadu business houses to invest Rs. 300 crores in three ventures outside in Orissa, Karnataka, AP and Maharashtra ; the limited availability of basic raw materials such as pig iron caused both by the small allocation and by bottlenecks in its release and distribution which involved the small scale foundry units in a crisis in September.

Industrial expansion

In September some positive industrial developments include the union government approval of the Rs. 1356 crores aromatic plant at Manali (of which the Madras Refineries will contribute to Rs. 720 crores during the VIII Plan) and which will when functioning employ 2000 persons itself and another 20,000 in downstream industries. Madras Refineries also announced its plan to establish a second refinery at Manali and a petro chemical handling terminal at Ennore. Also in September a SIPCOT Electronic Complex at Hosur over 450 acres where 190 plots are being made available to industrialists in electronics. At a similar level, Shri Ram Fibres announces the setting up of a Rs. 18 crore plant to manufacture high tech engineering plastic items. On the other hand, the announcement that a second newsprint project based on bagassee with a capacity of 2 lakh tonnes seems somewhat premature as the functioning of the first bagassee based plants (see Vol. XVI, p. 379) raises questions of viability and technology in use which have not been answered.

Individual Industries

Some individual industrial units which have come up for special mention in September may be noted. *South India Viscose* which has been making loses (accumulated loses of Rs. 7 crores) and recording falling sales and net worth, has now been turned around by its management, ending last year with a net profit of Rs. 29.27 crores, a six fold increase in its turnover and a sharp jump in its net worth. From being a one product line company it is now divesifying into setting up a) staple fibre plant jointly with the Malaysian government, b) a sunflower oil project at Palani, c) a seeds unit in Bangalore, d) a tissue culture plant with the Dutch collaboration, e) a plant with US collaboration to make lignosulphate from its waste liquor, f) an agro forestry programme to provide it with the needed raw material and g) the renovated taken over Mico Fan Chemicals, Mettur and

IAEC Boiler, Madras. Behind this fast diversification and growth is a large programme of human resources development involving two projects every month to restrain workers which also gets workers cooperation in the industry's activities. *Laksmi Synthetic Machinery Manufactures* is a new company floated by the Coimbatore Lakshmi group which has entered the capital market with a public issue of 13,50,000 equity shares at Rs. 10 each. With German collaboration, it is setting up a Rs. 12 crore plant to make machinery needed for the manufacture of synthetic fibres whose demand is fast expanding with the increasing demand for synthetic fibres by the people and demands of the growing packaging industry. *Lakshmi Mills* one of its founders, has been involved in its shares zooming in the Madras Stock Exchange, which the margin imposed of Rs. 100 for buyers and Rs. 150 for sellers could not stop its rise to Rs. 1900. This was part of a steady rising trend of the scrips of Ashok Leyland, Chemplast, CBE Pioner Mills, CWS India and Dalmia. *Spencer* an operating company reports a good year ending March 1990 registering a 20 per cent growth and going in for a Vizag plant to process shrimps for exports All this is a heartening industrial record

*　*　*　*　*

IV. Education, Science and Health

Educational reforms

The nodal point of educational reform is the functioning of the Acharya Ramamurthy Committee (See Vol. XX, pp. 329 and 330 and last issue) which in September established a perspective paper of its views on the educational reforms needed and circulated it interested persons for comment. The Committee has avoided the error set forth in the Janata election manifesto and the Approach Paper to the Eighth Plan of undertaking what the latter called "a thorough revamping of educational system", "an overhaul of education" as this kind review of educational policy every few years is like pulling up a plant every so often to see what its roots are like: that is the surest way of killing off the plant. Rather the perspective paper concentrates on specific aspects of the system which are to be reformed. The most important is the plan to decentralise education, to have the primary school operate at hours suited to the children of each area, to have a flexible free system of entry and exit and on this basis to universalise elementary education. If this is operationalised it would be the means of bringing education to all and cutting back on the dropout syndrome. The other proposals include replacing the current examination system by one of continuous evaluation, diversification of the vocationalisation of secondary schools, which CBSE and GIC are operationalising this year and IGNOU vocationalising its courses, development and operationalisation of neighbourhood schools, increased resources for education and discontinuance of Navodaya Vidyalaya.

The one major issue on which disagreement is expressed is the downgrading of adult literacy and the merger of the non formal education system with

the formal. The reason for denying the illiterate adults the 3 Rs. which is the key to education, on which all of us and our children have spent 4 years in the primary school is not clear. There is some reference to not confusing literacy with education which is right and that what the illiterate adult wants is means of survival, justice and an income which are also true but have nothing to do with literacy or education, and which depends on the kind of social order that is operating. As for non formal education, it is an essential tool for universalising primary education and in fact the formal system must move in that direction as far as teaching and learning content and methods are concerned. At a time when under the inspiring leadership of the UGC chairman, there is a growing and gathering consensus in universities, colIges, public leaders and political parties on closing universities for a year so that all students and teachers can spend the year making the illiterates literate in villages and urban slums, this backward step in the Perspective is to be regretted. It goes against all the pledges made by every one from the Prime Minister who released a literacy stamp on the International Literacy Day, down to school and college students who organised a human chain and took action to propagate literacy in this state on the International Literacy Day of this International Literacy Year. The preparation of the INSAT-11 satellite which will have larger capacity and greater reliability than INSAT-I, to be launched next year will among other matters help on the post literacy movement in the country. Meanwhile contrary to the doubts expressed by the Perspective Paper, the Bharathi Gyan Vigyan samithi is reaching out to 450,000 of the 500,000 villages in mobilising and motivating eyeryone — literates and illiterates — for literacy.

In the area of technical education, the reforms include modernisation of IITs for which a World Bank loan of Rs. 21.74 crores is being made; the MOU signed between IIT Madras and CEI for improving technology, through interaction between the institute and industries, and the development of IIT as a centre of excellence in manufacturing technologs; the modernisation of CIPET with the $ 12 million World Bank loan referred to earlier. Another important step forward in professional education is the drafting by the Association of Indian Management Schools of norms and guidelines for recognising management schools which are rapidly proliferating, and these norms are to be enforced by the All India Council for Technical Education. This should be paralled by operationalising the agreed programme to get students from well to do classes to pay for their education, while acting against all forms of commercialisation of education — particularly professional education — which are also spreading.

Science

Preparations are underway for the various sections of the Indian Science Congress meeting in January 1991. Papers are being requested and reviewed for the various sections. Here it is necessary to make this event less of a jambore and more of a serious working session which should first review how far the recommendations and conclusions of last year's congress have been implemented. Scientists working in AP and MP report achieving an important breakthrough in introducing for the first time in this country high voltage direct current technology, by establishing a

direct current 100 KV raising line between Lower Sileru in AP and Barsoor in MP. Now this pilot project needs to be operationalised commercially.

* * * * *

V. Employment and Labour Relations

The employment picture is a grim one with employment growth falling from 2.82 per cent per annum during the 5 year period 1972-73 to 1977-78 to 2.22 per cent and 1.22 per cent during the next two five years period. The 1989-90 Economic Survey puts the number of job seekers in Employment Exchanges at 323.55 lakhs at October end 1989 and states that the organised sector employment growth in 1987-88 was 1.4 per cent. A random survey reports the depressing fact that the total employment in the country was 260.30 lakhs as on March 31, 1989, which was a 1.1 per cent growth in one year. But the way forward to achieve the VIII Plan aim of reversing this trend and achieving a 3 per cent annual employment growth would be through the intensive development of agriculture which will also deal with the problem of under employment, endemic to that sector and the rapid and intense development of the small scale sector which in addition to generating employment, will also widen the entrepreneurship base, disperse productive activities and involve low capital intensity. Small scale sector employment increased from 107 lakhs in 1987-88 to 113 lakhs in 1988-89 which was a 5.6 per cent growth against the 1.1 per cent employment growth of the organised sector referred to above. Its output increased from Rs. 87,300 crores to Rs. 106.875 crores (22 per cent growth) in this period and exports were 29 per cent of our export at Rs. 4535 crores for 1987-88. The schemes for providing self employment to educated youth should be seen against this background, when the annual income earned was Rs. 11,000 per annum against the cost of creating that employment which was also Rs. 11,000. The average employment generated per unit was 1.89 and the average credit per unit provided by the bank was Rs. 13,000 which should be disbursed without bottlenecks and bureaucratic delays. The new job scheme for villages announced by the government in September is a national rural employment gurantee programme which would cover 50 of the districts with high incidence of poverty and unemployment. The scheme in all its operational details has been finalised in consultation with the appropriate state governments and is ready for launching. The scheme will generate 3000 million mandays of work annually against the annual 1000 million mandays generated by the Jawahar Rozgar Yojana (JRJ) and the 53000 million mandays generated during the last 10 years by NREP & RLEGP. JRY's generation of 950 million mandays during its first year — (last year) was good as it was 95 per cent of the target and with some changes is being pushed forward especially to benefit SC & ST. The government states that the unemployed (who have increased from 8 million in 1983 to 12 million in 1987-88) who are left out of the

scheme will receive an unemployment dole which will be one third of the minimum wage. The financial implications of the scheme must have been worked out by the government but has not been made available to the public. It is to be hoped that the finances can be found for this essential programme by squeezing out some of the luxury items. As a starting point to the backlog of the 135 lakh unemployment backlog from the VII Plan, the government using the 1987-88 NSS Survey announces in September a further scheme to deal with the 50 lakh educated unemployed among them — 35 lakhs with matric and above qualification and 15 lakh with graduation and above. The jobs will be created in the non governmental sector — 5 lakhs for graduates and above and 25 lakhs for matrics and above. This is part of the VIII Plan target of creating 3 per cent additional employment and will be concentrated on the small scale sector and on self employment. For this, ITI seats are to be increased by 10,000(in addition to the 16,000 increase already under way), the private sector given incentives to ITIs to open, as well as the public sector and polytechnic enrolment expanded. The increased training of computer profesional both for increased software production and repairs and maintenance services, reserving part of the dealerships, contracts, and service agencies for public sector, expanding the Self Employment for Educated/Unemployed Youth (SEEUY) and expansion of labour intensive production units in the private sector are also planned. It is the finding of the government that as the increase to the labour force including educated labour force is being normally employed, the concentration of this programme should be on the educated backlog which has remained stagnant over 3 plan periods. The employment potential of the above schemes over the 5 years period will be 150,000 though increased training at ITIs, 60,000 through polytechnic training, 625 000 for computer professionals, 175,000 for electronic technicians, 100,0000 through SEEUYs, 15,000 through the public sector organisations and 20,000 through voluntary women's organisation — all totalling 30,45,000. There may be some delays, leakages and slip ups, but the effort is needed and should be rapidly operationalised with the help of the states — government and private bodies. On conditions of labour, the state government's decision to set up labour office complexes in all districts, starting with Madurai, Coimbatore and Tiruchi will help a coordinated service to labour. The World Bank's recommendation in its report on India to reduce the benefits and protection of Indian labour in order to reduce tariffs on imports and make Indian products more competitive in the export area and provide an exit for loss making firms, has been referred to earlier. This recommendation is a non starter and should be rejected and instead the government and banks should develop programmes for retraining and redeployment of labour which will be released by the closure of non viable loss making units.

VI. Other Items

International Literacy Day

As this year is the UN proclaimed International Literacy Year, September 8, the International Literacy Day was celebrated with great enthusiasm and fervour in all countries, As noted earlier, in India, the Prime Minister released a literacy stamp on the day and every state organised special celebrations, literacy plays, songs, dances seminars and pledges on the day. At the international level, Unesco World Literacy Jury which met in August as reported in the last issue selected 5 outstanding literacy achievements for the 5 literacy prizes. The International Literacy Day function was held at Geneva at the Inter-ministerial Conference of the International Bureau of Education at which the prizes were presented to China (Nedezda Krupskya prize), Cape Verde (International Reading Association prize) Christian Brothers (Noma Prize), Dominican Republic (Iraq prize) and India (King Sejong Prize of South Korea).

State Planning Commission

There was a meeting of the State Planning Commission at the end of September when the resource position for the Eighth Plan was reviewed in light of national computation, estimates and guidelines and the probable financial and fiscal developments in the state. It was decided to fix the Eighth Plan at Rs. 9000 crores and recommend that the council of ministers approve both the estimate, total and its breakdown between the sectors, along with the proposed programme. There was also a review of the implementation procedures and machinery and the need for a periodic review by the commission of each sector and department on the basis of an agreed format that would be filled in was agreed to.

India International Centre

There were 2 events in the India International Centre in September. There was the panel discussion, the industry reviewed being Drugs and Pharmaceuticals, where the problem of the drugs industry were particularly noted along with the role of large and multinational firms and the problems thrown up by the consumers and their various associations. The government emerged as an even handed judge in this setting. There was also a seminar on land use policy, attended by over 40 experts, planners and specialists. The main points which emerged is the very poor state of land and water use in the country, leading to increase in degraded land, and the need to stop the degradation and reverse it by a sound water policy land reform and use.

UGC sponsored Literacy Project

The Project put forward by the UGC Chairman for closing universities and colleges and higher secondary schools for one year, and deploy the teaching staff and students in villages and urban slums to remove the mass illiteracy scandal was the subject of consultation with the political parties — Janata Dal, Congress, CPM, CPI and BJP. The 3 hour discussion ended with the enthusiastic endorsement of the project by the political parties who pledged their support in Parliament for legislation on it. Now further such consultation at the state level — governments, political parties, parents, students and teachers are to be the next stage.

SRC and TNBCE

There was a meeting of the Governing Body of SRC when the work of the Centre which is expanding to cover many areas so far untouched and all individuals and groups in villages and urban elums was reviewed. Under the Mass Functional Literacy Programme, the Centre with funds from the Union ministry has printed 60,000 literacy kits for the year and distributed 30,000 of them to students who are undertaking the literacy effort. To ensure its proper use, this year the name of each student receiving the kit is being recorded and is to be followed up. The executive committee of the Tamil Nadu Board of Continuing Education also met and put the finishing touches to the arrangements for the Annual Conference and the Triennial Assembly to meet in October It also noted with satisfaction the sanction of Rs. 2.5 lakhs towards the Board's headquarter building, and endorsed the action of the chairman in applying for a matching grant of Rs. 4 lakhs from the state government. As this was the last meeting of the committee before the Triennial Assembly when a new set of officers are to be elected, thanks and gratitude were recorded for all the services rendered by the General Secretary of the Board, Mr. Sethunathan.

October Development Seminar

A paper for the October seminar, 'Sustainable Agricultural Development through Watershed Management in Dry Areas of Tamil Nadu, by S. Sivarajasingham, together with a brief summary of the discussion on the paper appears as the first article.

Second Article

A note on the question, Do we need an IMF/EFF loan, appears as the second article.

Book Review

A review of D. S. Tyagi's 'Managing India's Food Economy—Problems and Alternatives' by C. Annadurai appears in the Book Review Section.

M I D S News

Dr. U. Kalpagam rejoined the Institute in early September. She was away from the Institute for three years undergoing training in Cultural Anthropology at the New School for Social Research, New York as part of a Post-doctoral Programme of study. While in the United States she spoke on Feminism in India at a number of seminars. She participated in a panel on "International Perspectives on Feminism" at the Annual meeting of the American Anthropological Association in Washington (November 1989), participated in a panel at the Fourth Interdisciplinary Congress on Women's studies in New York (June 1990), and was a discussant for a lecture session of the Section on Anthropology at the New York Academy of the Sciences (April 1990).

* * * * *

Dr. C. T. Kurien participated in a meeting of the Madras Chapter of the Indian Institute of Public Administration on October 13 and was one of the main speakers on "New Directions in Planning".

* * * *

Dr. Padmini Swaminathan attended a Consultation with Womens Groups on Operationalising Right to Work on Friday, October 26 at the Institute of Applied Manpower Research, New Delhi. The meeting was organised among others by the ISST, Sewa Bharat, and IIPA with support from the Planning Commission.

Dr. P. Radhakrishnan participated in a seminar on land use policy at the India International Centre, Delhi and presented a paper on Land Reforms in the Plans and on the ground.

He also participated in a symposium on Ambedkar and Dalits at the Sacred Heart Seminary, Poonamallee, and spoke on "Reservations".

* * * * *

Dr. Pulapre Balakrishnan presented a seminar on 'The behaviour of the industrial mark-up over the cycle' at the Indian Institute of Management, Ahmedabad on October 26.

* * * *

Sustainable Agriculture Development Through Watershed Management in dry Areas of Tamil Nadu

by

S. Sivarajasingham
MIDS, Madras

The Tamil Nadu Council of Science and Technology (TNCST) was asked by the Central Department of Science and Technology to develop an action programme for the management of renewable natural resources in Tamilnadu. TNCST requested the Madras Institute of Development Studies to provide technical assistance in the formulation of the programme. The project involves identification of "Micro-watersheds', where eco-restoration measures can be instituted. These management measures can be replicated in neighbouring micro-watersheds, and ultimately cover all the degraded areas of the State. In such a programme, government agencies, educational institutions, panchayat unions and the local people need to work in a co-ordinated manner to manage renewable resources at the village level.

Implementation of a strategy for renewable resource management at the village level requires assessing the status and dynamics of the natural resource base, the socio-economic structure, and the causes for resource degradation. It will then be possible to identify the corrective and preventive technological packages needed for resource management. This process is best accomplished at the *micro-watershed* level. The primary focus of this paper is on the development of a planning methodology for micro-watershed management in dry areas of Tamilnadu.

Development programme at the state and national levels have stressed the *intensive* use of natural resources to improve productivity, without giving adequate consideration to sustainable

use in the long-term. This strategy has resulted in various ecological problems, viz., soil erosion, siltation, land degradation, deforestation, over-grazing, floods and droughts, and so on.

Ecological degradation also threatens sustained economic growth in rural areas because the productivity of agro-eco systems is essential to human livelihood. With increasing population there tends to be greater dependence on a declining natural resource base. Those affected most adversely by ecological degradation are the poor. They cannot afford to invest in conservation measures, or grow tree crops which take a long time to mature, or move to more productive lands. In fact, with agricultural growth, the poor are driven to increasingly marginal land as holdings get consolidated. For the poor, immediate consumption needs are more pressing and more immediate compared to the future, which implies that there is heavy discounting of future costs and benefits. In terms of policy, it would be necessary to *improve the incomes of the poor in order to reverse the processes that contribute to ecological degradation*.

Sustainable agriculture development requires management of renewable resources such as soil, water, vegetation, livestock, and not merely increasing production or productivity. In Tamil Nadu, agricultural development has meant *irrigated* agriculture, with little importance on placed dry-lands. The same concern is echoed in the Approach Paper to the Eighth Five Year Plan :

"The reoientation of rural development programmes should help in promoting a regionally more broad-based pattern of agricultural growth, that is, ending the neglect of vast rainfed and dry areas. It provides a framework in which local land and water development works, including watershed development programmes can be planned and implemented more effectively — a process which affords excellent opportunities for creative involvement of technical and educational institutions and voluntary organisations in the area" (para 35).

In the rest of this paper, the concept of a "micro watershed", and the technical aspects of watershed management are presented.

1. Introduction — The Micro Watershed Concept

The concept of a *watershed* (used in the sense that is synonymous with *a catchment*, as the basic unit of land for formulating and implementing a *technical* plan of agriculture development is not new or strange. It has always provided the physical basis for plan formulation, design and execution of successful and efficient soil conservation and water management in rain-fed agriculture. In regions where the individual farm plots are invariably large and where each one may consist of many *microwatersheds*, successful and efficient implementation of the technical plan be undertaken in a simple and straight forward manner and in a predictable time frame. For the present purpose, microwatersheds can be defined as the smallest individual watersheds discernible on the ground or in soil conservation plans which commonly show contour lines at the appropriate vertical intervals, for example 0.2 m. or 0.25 m. in the nearly level and gently sloping areas. The divides or ridge-ines separating adjacent microwatersheds are sufficiently high that no conceivable flood could be expec-

ted to overflow from one microwatershed into an adjoining one. There is no need to unduly worry about terminology: the British usage of *catchment* and the American usage of *watershed* refer to the same topographical area. Yet a subtle distinction may be discerned in that the term *catchment* has been latterly used in the context of designing and constructing dams to refer to the area serving to provide run-off water for storage in water-spread areas (tanks or reservoirs) for irrigation of command areas below the proposed dams; the term watershed, on the other hand, in Forestry and soil conservation emphasizes the water shedding character of the slopes and the need to eliminate or regulate it through forest management, run-off or flood flow regulation and soil conservation).

The technical plan formulation takes into account the wide range of soil conditions and soil moisture regimes associated with the different topographic positions and slope classes in a microwatershed. Going across the microwatershed from one end, say the topographical divide at the top of the microwatershed through the upper slope, middle slope and lower slope down to the waterway at the bottom of the microwatershed, the soil conditions and moisture regimes are found to vary in a regular and predictable manner. This pattern of variation may be referred to as *a toposequence*. As a corollary, land use capability of the different tracts of land from the divide to the waterway also follows a characteristic sequence. These sequences of soil conditions, moisture regimes and land use capabilities are repeated with little or no modification among the many microwatersheds within *an agroecological unit* (described in the next section). Hence if the integrated land use plan formulated for sustainable agricultural development is successfully implemented in one microwatershed, it can be replicated easily in the other microwatersheds of the same agroecological unit. The composite plan can even become self-propagating if it is uncomplicated, well-structured and low-cost and uses locally available/mobilisable technical skills and labour.

2. Mapping of Agro-Ecological Units

In order to assess the representative character of microwatersheds which were found to be suitable because of the presence of a dedicated voluntary organisation of proven record and because of good prospects for people's participation, and in order to select more microwatersheds that would be representative of the different kinds of problems encountered in the state, an agro-ecological classification was needed. This was made using/interpreting the available published data and maps on rainfall, topography, drainage, geamorphology geology, soils, cropping pattern and land ownership pattern and was supplemented by visual interpretation of the satellite imagery on scale 1:250,000.

The physical units based on topography, drainage, geology and soils for use in an agro-ecological classification may be grouped as follows :

A. Coastal Region

1. Sand hills/dunes
2. Sandy flats
3. Mud flats (inter-dune and other depressions)
4. Raised beaches
5. Swamps
6. Salt pans

B. River Valleys

1. Channel sands (Entisols)
2. Deltaic plains
3. System tanks irrigation
4. Canal irrigation based on diversion by anicuts from large rivers.

C. Gently Sloping Uplands

1. Red soils of interfluvial uplands (Alfisols)
2. Black cotton soils of interfluvial uplands (shallow Vertisols)
3. Black cotton soils of low lying lands and river valleys (deep Vertisols)
4. Brownish yellow soils on lower slopes
5. Brownish yellow soils formed on sandstone uplands
6. Isolated, small, steep hills and fringing foot slopes (talus)

D. Hilly Region

1. Very steeply sloping areas (from 25% to over 40% slopes).
2. Strongly sloping areas (from 15% to 40% slopes)
3. Moderately sloping areas (from 8% to 25% slopes)
4. Gently sloping benches or terraces (from 0% to 15% slopes)
5. Gently sloping, broad valleys (from 0% to 8% slopes)
6. Fringing foot slopes or talus (from 3% to 15% slopes)

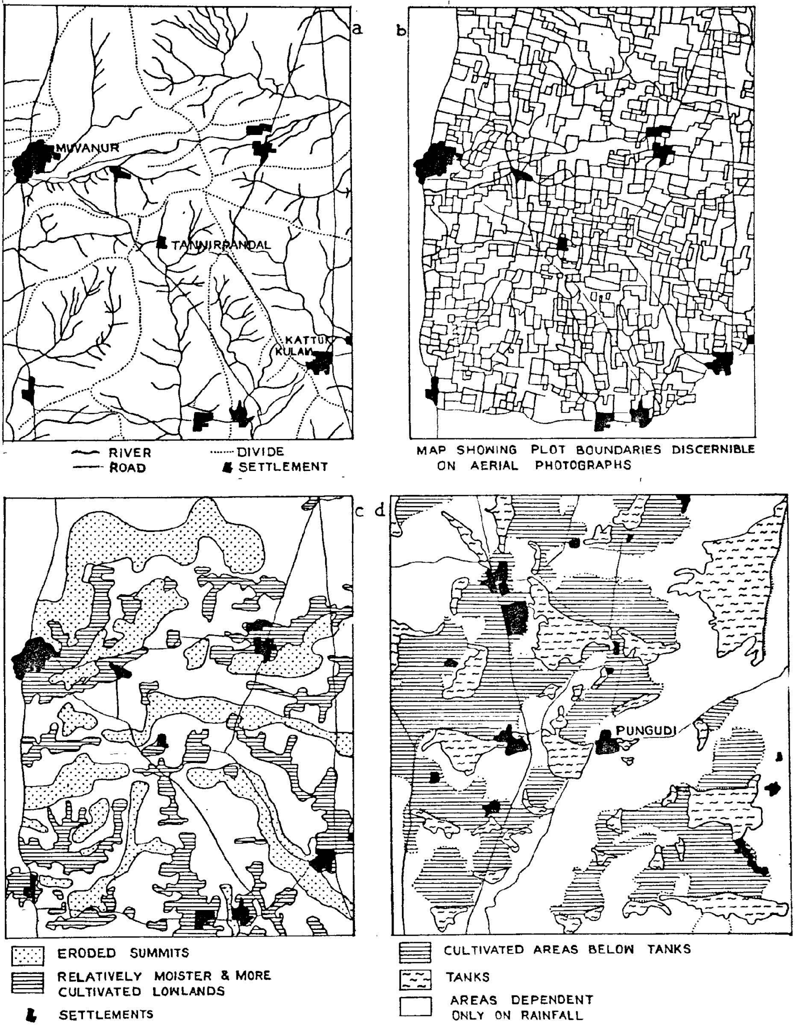
E. Other Units

1. Settlements
2. Large reservoirs / tanks

The pattern of rainfall regime is superposed on these physical units to obtain an assessment of the potential for rain-dependent agriculture. Instead of using the average annual rainfall, the average rainfalls received in the months of October, November and December (N.E. Monsoon) and in the months of June, July, August and September (S.W. Monsoon) are used to assess the potential for seasonal crops.

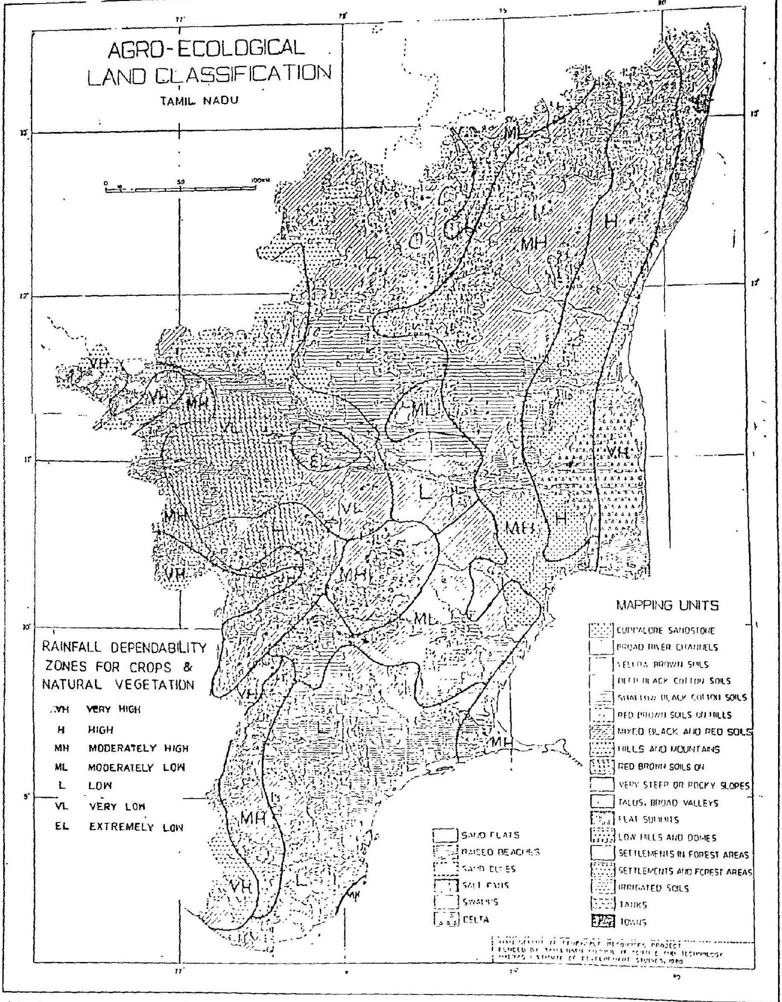
The total rainfall in the 3 months, October, November and December, (when Tamil Nadu receives rainfall over the whole state), ranges from 250 mm. to 300 mm. in the north-west to 700 mm. to 1100 mm. along the coast from Gummidipundi to Vedaranyam and from 400 mm. to 800 mm. in the hills of Eastern Ghats and along most of the border with Kerala on the slopes of Western Ghats. The total rainfall in the months June, July, August and September, (when only some parts of Tamil Nadu receive rainfall), varies from 0 to 150 mm. in the south east and central parts of Tamil Nadu to 450 to 500 mm. in the north east and 500 mm. to 2000 mm. or more in the hills of Eastern Ghats and along the border with Kerala on the slopes of Western Ghats. The state may be divided into five zones : 250 mm. — 300 mm., 300 mm. —350 mm., 350 mm.—400mm.—400mm. — 500 mm., 500 mm.—700 mm. and 700 mm. — 1,100 mm. for the N. E. monsoon rains and similarly into 5 zones : 0 — 200 mm., 200 mm. — 300 mm. 300 mm. — 450 mm., 450 mm.—750 mm. — 2,000 mm. for the S. W. monsoon rains. This classification may be used to make an assessment of the potential for rain-dependent, seasonal crops.

MAP NO: 1



FOR FURTHER REMARKS REFER TO PAGE 523

Map No.2



NOTE: THIS IS A NEARLY FOUR-FOLD REDUCTION OF ORIGINAL MAP ON SCALE 1:1,000,000

3. Integrated plan based on Alternative land uses

The watershed approach ensures that the potential for rainfed agriculture is considered in the widest sense possible to include, besides arable crops, a variety of alternative land uses like tree crops block or row planting (for fruits, fodder, fuelwood, construction poles, etc.,) silvipasture and agroforestry including alley cropping. The land use capability classification which separates land tracts into 8 classes (and several subclasses as needed and then into units) can be adopted for use in assessing the suitability of the land For arable crops, pasture and tree crops. This classification provides for 4 levels of suitability for arable crops, based on constraints (singly or in combination) due to slope, soil depth, soil texture, stoniness or rockiness and wetness. The land tracts not suited for arable crops are assessed for their suitability for pasture, tree crops and forestry also at 4 levels of suitability based on the same constraints. A given tract of land may have similar level of suitability for more than one land use.

In the watershed approach, within the constraints imposed by national or regional objectives or targets, it is possible to formulate *an integrated land use plan.* Though this land use plan is formulation on the basis of the land use capability of the individual tracts of land, it will also take into account the land use capability of all other tracts of land within the contiguous microwatersheds forming the project village area, it is based primarily on the needs and wishes of the people (including the landless of the village).

4. Supporting Measures to Arrest Ecological Degradation

An integrated land use plan for increasing the total yield of the conventional primary products on a sustainable basis, by implication, is also a plan for arresting the current trends of ecological degradation. Such a plan must include sustainable activities to enable the landless and the marginal farmers to meet their basic needs without causing ecological degradation ; only then will it be possible to wean them away from activities like tending their own or richer people's livestock on overgrazed land, charcoal making, brick kiln operation or simply cutting and selling fuelwood. These changes in means of livelihood and in living standards cannot be just a plan target of the future to be realised only towards the end of successful implementation of the land use plan. The changes must be brought in, right from the beginning of the project through sustainable, innovative, labour — intensive, income — generating activities like poultry or rabbit keeping, basket and mat making, and semiprecious stone polishing. The spurt in wages earned by the landless in drought relief programmes on other people's farms do not necessarily reduce ecodegradational activities in the long term, but only tend to increase the demand for products of such activities. Unless drought relief activities are planned and implemented carefully, they tend to be of very little, long-term value. The beneficiary farmers do not seem to care enough to continue to maintain the improved structures by their own efforts in subsequent years ; this is probably because they were not actually involved in the planning and construction of these structures by giving it time, labour or cost.

5. Problem of Undertaking Conventional Measures in Small Farm Plots

For a given area, depending on its soil, slope and rainfall, soil conservation and water management structures like contour or graded bunds, land shaping, graded bench terraces, stone wall terraces, graded broad beds and furrows, protected (or grassed) waterways, diversion ditches, contour trenches, percolation ponds, detention dams or gully plugs, and farm ponds are needed. These costly physical structures are of no avail unless they are accompanied, again according to the soil, slope and rainfall, by improved cultural and agronomic practices like contour ploughing, pre-monsoon ploughing, shallow ploughing to break surface crust, deep ploughing or ripping to break pans, trash mulching, trash ploughing, contour planting and intercropping, all of which help to varying degrees in promoting *in situ* absorption of the rain.

These conservation structures and cultural or agronomic practices could be routinely practised by farmers when the individual plots of the commonly fragmented holdings are large enough to comprise one or more microwatersheds.

But in Tamil Nadu, the average farm holding (1. 1 ha.) is one of the smallest in India. For example, in the village, Karatampatti in Tiruchirapalli district, it was observed that the project area is made up of 3 microwatersheds and that it contained 180 holdings fragmented to give a total of 224 plots. The average size of the holding is 0.4 3ha. while the average plot size is 0.36 ha. About 12% of the plots range in size from 0.01 ha. to less than 0.10 ha. and another 13% from 0.10 ha. to less than 0.15 ha.

Farmers with small holdings are averse to having an additional bund through the very small individual plots. Even if farmers who own contiguous plots are willing to have graded bunds built through their respective plots, they would not like to allow their boundary bunds removed on the upslope side of the conservation bund to allow the latter to become truly functional. The inevitable substitution of properly designed contour or graded bunds by compartmental (i. e. by boundary) bunds and their strengthening under subsidies during drought relief programmes could have provided some benefit if the precious surface soil in the vicinity of the boundary bunds were not hastily scraped by contractors to raise the bund heights to meet the deadline for performance (total bund length) evaluation and payment. When the farmer observes in the immediately following crop season, poor germination, poor growth and poor yield in the vicinity of the raised boundary bund, it is only natural if he puts the blame on the strengthened soil bund.

Contour ploughing should be strictly practised to promote *in situ* absorption of the rain in the furrows, but farmers seem to prefer ploughing up and down slope ; the relatively slowly permeable, compact subsoil layers seem to keep the surface ploughed layer too wet for farmers to move around. The unimpeded flow of runoff, in along-slope furrows leads to poor absorption of rain in the upper slopes and a heavy accumulation in the lower slope against the lower boundary bund leading to temporory waterlogging. Prolonged wetness at critical stages like young seedling stage could seriously affect stand density and growth. In time of heavy rains, the farmer is naturally tempted to make a breach in the bund to let off the

accumulated water. This leads in a cascade effect to the natural or deliberate breaching of successive lower bunds and the development of severe gully erosion. Some bund breaches are caused by failure to repair bunds caused by wheels of vehicles traversing the land which is inevitable in a region of small plots.

Compartmental bunds, even if contour ploughing is adopted, cannot cope with very heavy showers. Every year, the monsoon rains are characterised by at least one or two heavy showers of more than 50 or 60 mm. in 24 hours. Even the red soils of uplands would not be able to absorb or hold in the contour furrows such high rainfalls. Consequently the lower parts of the plots will be waterlogged for a few days depending on the length of the plot along slope, the soil condition, and rainfall intensity. It is therefore clear that even in the areas of lower rainfall in Tamil Nadu, there is a need for graded bunds, diversion ditches, protected waterways and farm ponds.

6. Need for New Approaches in Designing Watershed Management Measures

In regions with small farm plots, an almost insoluble problem is encountered in evolving a methodology for the construction of graded bunds, diversion ditches and protected waterways. The farmers are unwilling to have conservation structures cut across the plot boundary bunds assiduously maintained by them to protect their property. Yet the productivity of the land can be increased only *by minimising the adverse effects caused by the uncertainties and wide variations of a monsoon rainfall regime and by rebuilding, the fragile tropical soil environment.* It is therefore necessary to re-assess priorities and develop a methodology so that the farmers' ownership sentiments and sense of security are not affected. The two key elements in this methodology are the farm pond and soil humus build-up.

a) Farm Pond

Since for all practical purposes the individual plots within a microwatershed are inviolate discrete units, the major soil conservation and water management structure around which the other measures can be developed is the *farm pond*. The depth of the farm pond can be 3m., a depth to which most farmers would be able to excavate by themselves without outside help. In order to cope with a not so infrequent 24 hour rainfall of 125 mm. falling on a wet soil, each plot of land regardless of how small or how large it is, will need a pond covering 4.2% of the plot area. If the bottom one metre is made completely impermeable for using the stored water for short-term raising of fish starting from fingerlings, a pond area of 6.3% will be needed.

Depending on the terrain and the soil, the walls of the farm pond can be strengthened and made somewhat impermeable using bitumen, small amount of cement or even bricks, so that the farm pond can be used to store water for fairly long periods. This will provide for crop saving irrigation of high-value crops, if, there is a long dry spell within the dry season. The walls above lm. level should not be completely impermeable. This is to enable the recharge of ground water by very slow seepage. Underground storage is the most economical and convenient. The farm ponds must serve the dual, seemingly contradictory, purposes of storing water for re-use and at the same time be availa-

ble for collecting run-off to prevent flood damage and losses due to surface run-off and erosion. For the former use, the ponds need to be kept full and for the latter, they need to be kept empty. This problem is not insurmountable as it may appear at first glance. Even management of large reservoirs are faced with this dilemma.

If farm ponds are excavated in all the plots, they will benefit not only the plot owners but will also benefit the entire microwatershed (including the landless) and downstream areas as a result of improved recharge of ground water storage and prolonged base flow in the streams. Since these farm ponds are sunk below ground level, they will not aggravate, even when they are full, any flood caused by runoff due to a heavy downpour. On the contrary, the chances are these ponds will not be completely full and hence will be able to reduce in some measure the adverse effects of floods.

The decrease in yield of the plots due to loss in crop area (of 5% to 7% taken up by the pond and sloping walls) will be more than offset by the assured higher yields if not of all the crops at least of high value dryland crops given supplemental irrigation in a small part of the plot by the produce of useful plants like fruit trees planted on the pond's perimeter, and from the fish production.

b. Soil Humus Build up

The second measure is to make a conscientious effort to maintain and steadily increase the humus content to the levels practicable in a warm, moist environment where decomposition of humus is very pronounced. The other factors which cause rapid destruction or decomposition of soil organic matter or humus are depletion of soil nutrients like nitrogen and trace elements (inevitable in poorly managed, over grazed soils), and excessive insolation (caused by deforestation, removal of all straw and stubble, and over-grazing of fallow lands). Humus-poor soils can be improved over time under well-managed, intensive cultivation as is possible in the small plots of Tamil Nadu. The steps to be taken are use of compost, household refuse, rabbit and poultry and other livestock manure, stubble mulching, ploughing in green manure, cultivation of leguminous crops, and planting leguminous trees along bunds, controlled off-season grazing in paddocks (if grazing is not completely avoidable) to at least get the benefit of the animal manure, and minimum tillage compatible with rain water management and weed control. Selected trees can contribute to humus build up by leaf fall, nitrogen fixation in roots and shading of the ground from excessive insolation.

7. Watershed Management in a Wider Perspective

The degraded uplands need to be developed to augment the energy supply, provide a basal minimum employment and improve the ecology. It must also be remembered that paddy, maize and pulses can be produced in much larger quantities (5 to 10 times more)in the irrigated areas than under rain-dependent agriculture. The productivity of these crops under irrigation is very low by international standards. Without seeking consolation by making comparisons with other states in the Union, it is necessary to find why some farmers even within Tamil Nadu are able to get yields 5 or 6 times the state average and to evolve a methodology and infrastructure that could encourage most farmers to improve

their yields. In order to overcome physical limitation like cloudiness, unsuitable soils, and excessive use of water in certain soils and topographic conditions, irrigated agriculture should be practised on the most suited areas. It would be then possible to meet all the cereal and pulse requirements from irrigated agriculture and to release the degraded uplands for perennial crops and forestry. The increase in yield of irrigated crops could be achieved on a sustainable basis using low harmful residue fertilisers, judicious use of pesticides, green manure and farmyard manure, and crop rotations. The use of improved traditional methods for ploughing, transplanting, weeding and harvesting will ensure a reasonable employment for the landless people.

Bibliography

1. Fenwick, I. M., and Knapp, B. J., 1982 : Soils : Process and Response pp 48-57 ; Duckworth, London.

2. Foth, H. D., 1984 : Fundamentals of Soil Science, pp 151-167; John Wiley, New York.

3. Gil, N., 1985 : Watershed development with special reference to soil and water conservation, 257 pp. and in particular pp 130-136 ; FAO Soils Bulletin No. 44, F. A. O., Rome.

Maps : Explanatory Note

Maps 1a, 1b, 1c (Thanneerpandal area) and Map 1d (Pungudi area) are presented to show the different agricultural potential within micro-watersheds and between them. They clearly illustrate :

a) the location of some settlements — near the summits of very gentle slopes ;
b) the different proportions of moist lowlands and droughty uplands around different settlements ;
c) the higher proportion of droughty or eroded lands near the divides and summits, and the higher proportion of moist lowlands near the lower part of watershed or catchment areas; and
d) the larger plot size and/or poorer maintenance of plot boundaries near summits and divides.

Map 2 shows the distribution of different kinds of land areas and on this is superimposed rainfall zones showing potential for rain-dependent agriculture.

cknowledgements

The author wishes to thank the Chairman, Dr. Malcolm S. Adiseshiah, the former Director Dr. A. Vaidyanathan, and MIDS for providing him this opportunity to work on a project towards improving the rural economy of Tamil Nadu. He wishes to also acknowledge his thanks to Messrs. Michael Rajadurai (Trichinopoly), P. Vasimalai (Madurai) and A. Namboodri (Coimbatore) and Dr. Paul P. Appasamy for many stimulating discussions. The introductory paragraphs to this paper were written by Dr. Paul P. Appasamy. Finally, he wishes to place on record his gratitude to Ms. M. Vijayalakshmi and D. Thirupurasundari for their patience and dedication and scrupulous attention to detail and accuracy which made the entire work possible.

Summary of Discussion

'Water is liquid gold especially for rainfall farmers' this core subject matter was enunciated by Dr. S. Sivarajasingham in the seminar on watershed management for dry areas. He elaborated many important aspects of dry land agricultural development, such as: adoption of soil conservation measures, prevention of silt accumulation in the ponds, improving the application of farmyard manure and strengthening the importance given to the social forestry or silviculture. These are generally described as the 'eco-restoration' system, which directly uplift the productivity of land. The attention was further focusssd under two important aspects. One is the construction of farm ponds in appropriate place where the ,effective rainfall' (amount of water actually absorbed by the soil) is low but, the down pour is high. The next one is the building up of soil humus content in other words, enriching the soil with organic matter by way of applying compost, household refuse, livestock manure, stubble mulching, ploughing with green manure, etc. Adoption of these concrete measures definitely enrich the dry farming yield.

In the discussions, one of the participants alluded that in South India, especially in Tamil Nadu, there has been a large number of tanks already existing hence he raised the doubt regarding the necessity for planning watershed management. While answering this question the author remarked that if all the existing tanks properly serve its purpose then it is good, otherwise one should expect the watershed management to improve agriculture. In this connection he differentiated the ponds and tanks. The former relate to merely percolation ponds more or less similar to watersheds, but the latter differ widely from this sense.

The next issue raised was the protection of 'Humus' in the soil structure. One participant inquired tbe mechanism behind the Humus preservation capacity in the soil. The author explained that 'Humus', the bacterial structure which enrich the soil moisture requires a drastic change in the application of manure pattern i. e., reduction in the use of inorganic chemical fertilisers to the increasing application of farmyard organic manure. He

cited an example in this regard, that in USA the up land farmers are now realising the necessity for the use of farm yard manure to improve the yield level by conserving the level of "Humus" in the soil.

One issue that came up was the possibility of pumping water from the farm ponds. One of the participants wanted to know whether water could be lifted if it is filled up or how it could be utilised. For this question the author described the different kinds of advantages behind managing the farm ponds, namely, if they are preserved then water could, automatically infiltrate into the soil which enhance the soil moisture and also provide benefit for the crop's Potential Evapotranspiration (PET) mechanism. Further, the percolation from the farm ponds enrich the sub-surface water level. Moreover, if they are properly constructed then it could also be used as temporary fish production farm. Hence he replied that there is no necessity to lift water even if they are filled up.

At the end of the discussion, the chair person, Mr. S. P. Namasivayam pointed out a few important water harvesting mechanisms from his experience. He remarked that the watershed management basically requires a contour bunding survey, which was undertaken in Southern states of India during 1930s. But, subsequently it was not implemented effectively. The people's participation to construct and conserve the watersheds and by making 'water panchayats' as well as the consolidation of land holdings at village level was considered one of the effective measures in this direction. The importance of percolation ponds was highlighted, because it also benefits the recharge of the wells or even to enhance the sub-surface water level. A critical remark was made against the government's retrogressive measure which is being adopted for the prevention of siltation either in tanks or in ponds insisting on prior permission from the department which nullifies the silt removing activity by the villagers. The chairman quoted from his experience under "Kudimaramath" (a system of voluntary labour participation to conserve the tanks and ponds) with local cooperation and involvement for the conservation. But, it needs effective policy implementation. Finally, he concluded by making a point that both the big reservoir system and the micro watershed management are necessary to improve efficient management of agriculture.

K. SIVASUBRAMANIYAN

Do We Need an IMF-EFF Loan ?*

The question

Should we go in again for a loan of SDR 5 billion from IMF's Extended Financial Facility (EFF) as we did in 1981, which later in 1984 we reduced to SDR 3 billion ? We are still repaying this loan, and because of the continuing depreciation of the Rupee which in two years 1988 and 1989 was 20.54 percent against SDR, we have as of today repaid to IMF more than what we borrowed in Rupee terms, but only half of the loan in SDR terms.

The problem

The problem confronting us which leads to this question is three fold. First, taking 1988-89 (for which we have full final figures from R. B. I. and not the partial figures of DGCI & S), we have a trade deficit of—Rs. 14,002.5 crores, a net balance of payment current account of—Rs. 10,429 crores. How are we going to meet these negative pressures on trade and the balance of payments ? So far we have in part met it by using our capital account balance of payment resources, through which we were able to reduce our deficit to — Rs. 855.7 crores. This means that we are now running out of this resource. Second, our foreign debt is computed by the Reserve Bank at Rs. 83,835 crores, which our Finance Minister's rounds off by including all foreign debts to Rs.1,00,000 crores, involving a debt service ratio of 30 perecnt, which is well past the danger point. Third, according to the Reserve Bank, our foreign exchange resources and monetary gold have fallen by —Rs. 1440.5 crores and are equal to paying for 5 weeks imports (using the 1989-90 import figures). These three pressures, namely, trade and balance of payment deficits, mounting foreign debt and the dangerous debt service ratio

---

* A note by Dr. Malcolm S. Adiseshiah for the Economic Times, August 10, 1990.

and our near empty foreign exchange reserves, are the problem.

The way out

The way out is a double one. The first way out is to look inward and mobilise our own resources by a) expanding our exports to reach at least this year's export target of Rs 35,000 crores which may involve some reduction of domestic demand of agricultural products including agro processed items, b) cutting back on imports by some 10-15 percent which involves modification in the just announced 3 year Import-Export policy and the new foreign trade policy that we have just begun to do but which must be extended further to machinery and equipment, POL and other bulk imports and c) further reduction of wasteful foreign exchange expending activities on which also a similar start has been made. Through these alleviating actions the trade and BOP deficits can be drastically reduced and what deficits arise will be on servicing our foreign debts. It is only after these Internal actions are taken to meet our external obligations with our own resources that we should approach the IMF for a maximum loan of SDR 1 billion if necessary. This has a price, which we will have to pay as setforth in 1981 and again in 1983 in the letter to IMF from our Finance Minister in these words : "the policy of providing liberal access to imports of raw materials, intermediates and capital goods is being maintained and where appropriate strengthened. Accodingly, significant steps have been taken in the import policy for 1983-84 to further liberalise imports.... the structure of liberal access to imports is strengthened in important areas". This time there will be an IMF condition on reducing our budget and fiscal deficits and the means of doing so. Of course we must reduce our fiscal imbalance, but in areas which are non priority and by methods which we decide. And so I do not shut out our going to IMF for a loan, but on two condition : a) first, that we do the maximum we can by our internal efforts to reduce the need and scope for the IMF loan, and b) we realise and accept its conditionalities, which can be reduced only by our reducing our loan request to a minimum.

Book Review

Managing India's Food Economy — Problems and Alternatives by D.S. Tyagi; 1990 ; Sage Publications India Pvt. Ltd., M 32 Greater Kailash Market I, New Delhi - 110 043 ; pp. 240, Price Rs. 165.00.

Management of the food economy (MFE) in India has always posed a serious problem to the Government — both under conditions of scarcity as well as under conditions of plenty. The management problem arises chiefly because of the operation of, what has come to be technically called, "the two — market, two-price system". Co-existence of a predominant private trade along with a partial State control of foodgrain marketing has been allowed in the food system. The Kellogg International Fellowship provided the eminent agricultural economist, Dr. Tyagi, an opportunity to systematically study the emerging problems and feasible alternatives to be introduced in the MFE under the present conditions of self - sufficiency. The in-depth and highly critical study addresses itself to a number of inter-related issues which are of great concern, not only to food experts but also to the entire reading public. The penetrating monograph under review has heen organised into 10 chapters and honestly attempts to present a comprehensive and coherent image of India's MFE

In comparison to the "exhausted and exploited agricultural sector", inherited at the time of Independence, a number of remarkable successes have been achived, especially during the 1970s and 1980s. The three chief achievements are : (i) higher rate of output growth than the population growth rate ; (ii) prevention of occurrence of famine in the country ; and (iii) substantial increase in the physical and economic access to food. Before analysing the 'Central question of the study' the author has provided a brief historical development of control measures and the basic objectives of national food policy. This gives a proper background to the more complex issues to be taken up in the later chapters. The central question of

the study is to examine whether a food system, primarily designed to cater to the needs of a deficit economy, could cope with the problems that would emerge in the changed supply-demand scenario. This central question necessitated the analyses of a number of inter-related issues which have a strong bearing on the MFE

Procurement, storage, movement restrictions, maintenance of buffer stock and the public distribution system (PDS) are the major constituents of Government's food management policy. Production, productivity, issue-prices, quality control, imports, exports, behaviour of market price etc are the other related aspects of food policy. Governments have imposed control and regulatory orders and legal measures on all these activities involving foodgrains and other essential commodities. Several organisations / institutions / departments / ministries / agencics etc are functioning and coordinating a large number of activities and responsibilities in the running of the MFE. The study provides a critical assessment of their functions and activities which clarify a number issues that are not generally the theme of academic discussions.

Apart from belying the threats and forecasts of authors like "Famine 1975", the rapid increase in the rate of output growth made two major achievements possible : prevention of occurrence of famine and an overall increase in the physical and economic access to food. While in 1951 the per capita availability of foodgrains was only 395 grammes per day the same has increased to 478 grammes per day in 1987. Through the analyses of 'seed correction factor', comparison of per capita income with per unit of foodgrain and through the comparisons of trends in per capita income with the trends in prices of foodgrains, the author has shown that, over time, the economic and physical access to food has improved considerably. However, during some years, consequent to sharp declines in foodgrain production, conditions became ripe for a famine. Avertion of a widespread famine during 1955, 1956, 1957, and to a lesser extent, during 1973-75, 1979-80 and 1987-88 was largely because of the successful functioning of the MFE.

Dr. Taygi has explained, in great detail, the various strategies adopted by the Government for attaining the objective of self-sufficiency in foodgrains. The new agricultural strategy (package of HYV, fertilisers, water and mechanisation) introduced during 1966-67 enabled the farmers to shift to higher production possibility curves. The setting-up of the APC (now CACP) and the FCI and their functioning within the framework of food price policy sustained the tempo of foodgrain production generated by the new agricultural strategy. Self-sufficiency in foodgrains should be considered remarkable because, in the process, the two basic problems, viz , numerous small holdings and variable climatic conditions were successfully overcome. In the seventies and eighties, the food price policy has been used as the main instrument of growth, of course, along with the upgraded agricultural technology. The detailed temporal and spatial analyses indicate that price policy favoured wheat production in the early phase, but after the mid-seventies, it was tilted in favour of rice production.

Tne analysis of data on the cost of production (COP) of wheat and rice in different States indicates that cultivation of these crops was not profitable till

the mid-sixties. The detailed analysis of average cost and procurement price data, made available by the CACP, for the years in the seventies and eighties, shows that procurement price has always been higher than the average COP per quintal of wheat and rice. In addition, the higher rate of growth of these crops made the COP in real terms constantly declining. Procurement price has also been shown to be helping the producers by forestalling an undue decline in the output prices during bumper harvest years such as 1971-72, 1982-83. With specific reference to 1979-80 and 1987-88, the author has shown that the MFE was working successfully during those drought years through the PDS, NREP, RLEGP, Food for Work Programme etc. He observes, "in the prevention of the occurrence of famines in recent years in India, the food policy has played an important role. It is doubtful whether in the absence of a policy of holding a buffer stock of foodgrains the occurrence of famines in the country could have been successfully prevented in 1979-80 or 1987-88—the years of severe droughts in the country" (p. 86).

After the proper appreciation of major achievements of food policy the author has brought to limelight some of the significant failures of the same. The objective of safeguarding the interests of consumers, particulary the more vulnerable sections of society through the PDS, has been taken up first. Three major questions are posed in the analysis. They are: (i) whether the distribution of foodgrains in different States has been in proportion to the number of poor people in each States ; (ii) whether the quantities distributed in different States have gone to the really poor ; and (iii) whether the share of supplies through the PDS and the difference between the issue prices and the prices that would have prevailed in the absence of Govenment intervention have been large enough to compensate for the increase in the open market prices as a consequence of procurement.

A detailed analysis of the elaborate data-base across States gives the following conclusions of great concern. The per capita distribution of foodgrains in different States has not been consistent with the percentage of population below the poverty-line in these States. Further, the distribution of foodgrains has not gravitated either in favour of areas with a higher proportion of the poor or in favour of areas with a lower per capita income. Again, distribution of foodgrains has not gravitated either in favour of more deserving regions or in favour of more vulnerable sections of the society. Owing to smaller quantities of distribution, or greater open market difference (compared to issue price) or both, the PDS has made the consumers worse off as they have to pay a higher average price than they would have paid in the absence of a dual market system.

Another major deficiency of the food policy has been its inability to ensure reasonable prices to the producers of coarse cereals such as jowar, bajra and maize. Their price-trends have shown greater fluctuations than those of wheat and rice. The open market prices of coarse grains often ruled below the minimum support prices (MSP), especially during 1983-84, 1985-86 and 1988-89. The case for greater procurement and distribution and for full compensation by the Government for losses incurred either by the producers of coarse cereals (owing to price fluctuations) or by the PDS (owing to subsidised distri-

bution) is even stronger than that for wheat and rice as these cereals are generally produced by the poorer farmers in the rainfed areas and are consumed by the relatively poorer sections of the population. It has been observed that during some years, despite large stocks of foodgrains, prices rose abnormally — for example, 1985. Foodgrain prices go out of control, not during the drought years but during the years following the drought years. The years followfng the drought years of 1979-80 and 1987-88 provide ample evidence to the unusual price rise even in the context of large buffer stock !

Dr. Tyagi has also identified some important problems emerging out of the "self-sufficiency environment". In comparison to the early sixties, the pattern of market arrivals in the eighties, shows a high degree of concentration, immediately after harvesting operations. For example, in Punjab during 1983-84, the concentration touched a record high of 96 per cent of the entire marketing season's arrival in just 5 weeks. This kind of concentration makes the procurement by the FCI very inefficient and disorderly. It also creates problems of transportation, handling and storage, as the markets get chocked with supplies within a short period of 4-6 weeks. These problems directly lead to the huge burden of overhead cost of food storage which keeps the PDS in bad reputation.

The ever increasing difference between economic cost (procurement price + procurement incidentals + distribution incidentals) and producer prices, again poses as a great problem. In the eighties, the difference touched 54 per cent of the procurement price in the case of wheat and 43 per cent in the case of rice. This makes the PSD highly cost — inefficient (in comparison to the private trade) and demands huge Government subsidies. And without subsidies, the PDS selling prices would be much higher than the open market prices — clearly economic sense would not permit this. The author has also analysed the causes and trends in food subsidies over time, covering upto 1987-88. In 1987-88, subsidies exceeded Rs. 2128 crores ; of which carrying cost alone accounted for Rs. 204 crores. He has also elaborated the major contributory factors to the phenomenal growth of subsidies. Greater and excessive buffer stock than the recommended levels (by the 1982 Technical Group)- overlooking the principle of equitable-sharing of surpluses and deficits by the States are the other two problems that get the serious attention of the author.

Reduction in imports, cereal supply exceeding cereal demand, increases in the per capita availability of cereals, vegetables, protective food etc. confirm, "the conclusion that India is on the threshold of self-sufficiency in the case of cereals" (p. 152). The self-sufficiency has been estimated to continue in the 1990s also. The crucial contribution of productivity - factor in the attainment of self—sefficiency has been explained, with illustrations from different States, in a clear manner. The author observes, "given the supply growth of about 3 per cent and the increase in demand being of the same magnitude, India would be a self—sufficient economy as far as cereals are concerned during the next decade" (p. 163). The study has also estimated greater procurement and distribution in the nineties, touching during some years 45 million tonnes and 34 million tonnes, respecitively. In the changed supply-demand scenarios

the author recommends greater involvement of private trade. The distrust in free market, in the context of self-sufficiency and buffer stock, should be removed.

The need for alternatives and modifications in the present system of MFE arises mainly because it has failed to protect the interests of both the consumers as well as the producers, Futher, the enlarged role of Government with its huge subsidy-bill adversely affected the efficiency of the entire marketing system. The search for alternatives has been launched within the framework of the dual market, dual price system. The objectives of alternatives should be greater fulfilment of the goals of food policy at less and less cost. Instead of the general "PDS-for-all"-approach the author rightly recommends the target-group approach in future. Greater procurement and disiribution of coarse cereals, wholesale control by the Government rather than the retail control, limited procurement of wheat and rice through the MSP, payment of holding and storage cost to producers, greater involvement of private trade etc. are some of the alternative policies recommended by the author. Regarding the management of buffer stock Dr. Tyagi disagrees with the 1982 Technical Group which recommended the entire buffer stock to be in physical terms. The author observes, "only 60 per cent of the desired size of the buffer stock should be in physical terms and the remaining 40 per cent should be in the form of foreign exchange reserves. This should be reviewed after 4-5 years and a further reduction may then become desirable" (p. 200).

The study also explores whether the present information system can adequately meet the requirements of policy planning in the self-sufficiency environment and outlines the immediate improvements to be made. A high degree of reliability of statistics and their timely availability have been emphasised. Deficiencies, gaps and discrepancies, especially relating to foodgrain production, availability and consumption expenditure data have been brought to light. The author strongly recommends that the necessary corrective measures should be immediately undertaken.

In the treatment of the subject by Dr. Tyagi, a few weak links and deficiencies could be observed. First, the recommendation on greater procurement and distribution of coarse cereals by the Government agencies cannot be operationalised for a number of 'built-in weaknesses'. Greater production fluctuations, shorter life time, faster rate of deterioration, heavier storage. losses etc, are some of them. For these reasons, it may not be possible to operationalise this recommendation even in the future. Further, while analysing the MFE during drought years, although the author mentions about the importance of employment-generating schemes one has a feeling that it has not been given the due emphasis and weightage. Familiarity with the literature in the area suggests that this has been the general weakness of most of the studies also. These studies analyse the poverty-issues marginally but do not go beyond that. Analysis of employment and income-generating schemes along with food and poverty-issues has been considered peripheral in nature. This cannot be acceptable because only the provision of employment and generation of income, by gainfully employing the rural and urban poor, could be the permanent solutions to the problems of food and poverty rather than rhe highly subsidised food distribution.

The author also recommends setting aside the foreign exchange reserves equivalent to the level of 40 per cent of the desired size of buffer stock. This recommendation, if implemented, might prove to be dangerous because : (a) the 40 per cent value may be a considerable proportion compared to the total reserves available ; and (b) an external contingency like the present 'Gulf crisis' may thoroughly disturb the foreign exchange reserves. Finally, in his discussion on the alternatives in the MFE the author recommends 'target-group approach', instead of the general PDS approach. He also suggests that, since the decision to restrict the PDS only to the target-group cannot be taken at the level of a State Government at the present politico-economic juncture, the Central Government should take a major policy decision in this regard. Although it is economically a sound policy suggestion, one is not sure whether the Central Government will have the "political will" to do this. Considering the sensitive nature of the issue and the difficulties associated with the identification of the really poor, such a policy decision could be taken only after a considerable amount of national debate and discussion. This may also turn out to be "asking for more troubles".

These weak links do not conceal the great merits of the book by Dr. Tyagi which covers a wide variety of complex issues and keeps the discussions analytical and thought-provoking. It is also very timely and up-to-date. The author discusses many complicated issues with a high degree of ease, clarity and accuracy. Even the repetition of some themes, in different chapters, shows the complicated nature of the subject-matter and the author has demonstrated his analytical skills in bringing out the required clarity. This excellent book (with 10 chapters, 84 tables, 8 appendices, and 5 figures) will be of immense use and interest to researchers, policy-makers and to those engaged, directly of indirectly, in the MFE. The book will remain as an outstanding contribution and as a major source of reference on the subject of food policy and food management in India.

C. ANNADURAI
Madras Institute of Development Studies

Publications of the Institute consist of the following categories

1. **Publications brought out by Messers Sangam* Publishers :** These consist of a series of monographs mainly relating to Rural Development of Tamilnadu brought out between 1972 & 1980. Detailed list including prices available on request from the Programme Coordinator of MIDS. Orders may be placed with Sangam publishers, 11, Sunkurama Chetty Street, Madras - 600 001 for these.

2. **Cyclostyled Publications :** These consist of Working Papers, Digest Series, Data Series, Popular Series, Interns Reports and Offprint Series brought out since 1978. Detailed list available on request from the Programme Coordinator of MIDS.

3. **Occasional Publications of the Institute include :**

a) *A Manual of Sources of Data on Tamil Nadu Economy* (1979) published by MIDS pp. 92, priced at Rs. 10/- per copy and Rs. 6/- for bonafide research scholars.

b) *Area Studies Bibliography Tamil Nadu* (1984) published by MIDS pp. 226 Rs 30/- for paper cover & Rs. 40/- bound volume.

c) Social Science Research in South Indian Universities — A Listing and Review of Ph.D. Dissertations (1989) Published by MIDS and ICSSR, SRC. pp. 260, Rs. 20/-

a), b) and c) obtainable from the Programme Coordinator of MIDS

4. **Special Publications***

a) *Poverty — An interdisciplinary Approach* edited by B. Sarveswara Rao & V. N. Deshpande (1982) & published for MIDS by M/s. Somaiya Publishers, Pvt. Ltd., Bombay pp. 296, Rs. 125/-

b) *Guide to Research in Economics,* edited by C. T. Kurien (second edition) (1985) & Published for MIDS by M/s. Rainbow Publishers, Coimbatore, pp. 390, Rs. 100/-

c) *Some thoughts on the Seventh Plan* by Dr. Malcolm S. Adiseshiah (1985) & published for MIDS by M/s. Dialogue Publishers, New Delhi, pp. 136, Rs. 70/-

d) *Shaping National Events* by Dr. Malcolm S. Adiseshiah (1985) & published for MIDS by M/s. Dialogue Publishers, New Delhi, pp. 335, Rs. 180/-

e) *Tamil Nadu Economy : Performance and Issues* by MIDS (1988) & Published for MIDS by Oxford and IBH Publishing Co. Pvt. Ltd. Delhi, Rs. 60/-

* These publications may be ordered directly from the respective publishers.

Regd. No. M. 8831

MADRAS INSTITUTE
OF
DEVELOPMENT STUDIES
(MIDS)

The Institute was founded by Dr. Malcolm S. Adiseshiah in 1971 and was reconstituted in 1977 as a National Research Institute within the framework of the Indian Council of Social Science Research, New Delhi.

The aim of the Institute is to contribute to the economic and social development in Tamilnadu and India.

The activities of the Institute are :

—Research leading to Ph.D. Degree

—Studies and action-oriented research in micro-development problems

—Documentation and library service in development problems

—Exchange and dialogue at the State, National and International levels on development issues

—Publication of papers and results of the Institute.

Editor : Dr. Malcolm S. Adiseshiah, Published by Dr. S. Neelakantan for Madras Institute of Development Studies, 79, Second Main Road, Gandhinagar, Adyar, Madras 600 020, India
printed at reliance printers, 9, sardar patel road, madras-600 020.